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October 16, 2019

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Re: Comment on Final Environmental Impact Report, Times Mirror Square Project (aka VTT-74761, ENV-2016-4676-EIR, CPC-2016-4675-TDR-VCU-MCUP, and SCH No. 2017061083)

Dear Mr. Lamborn, Mr. Bertoni, and Ms. Wolcott:

This letter is submitted on behalf of Supporters Alliance For Environmental Responsibility ("SAFER"), a California nonprofit public benefit corporation, regarding the Draft Environmental Impact Report ("DEIR") and Final Environmental Impact Report ("FEIR") prepared for Times Mirror Square, Project No. ENV-2016-4676-EIR (SCH No. 2017061083) (the "Project"). After reviewing the DEIR and FEIR (collectively, "EIR"), we conclude that the EIR fails as an informational document and fails to impose all feasible mitigation measures to reduce the Project's impacts. SAFER requests that the Hearing Officer and Advisory Agency refrain from recommending certification of the EIR at this time and instead request the City of Los Angeles ("City") to address these shortcomings in a revised draft environmental impact report ("RDEIR") and recirculate the RDEIR prior to considering approvals for the Project.

I. PROJECT DESCRIPTION

The Project proposes to rehabilitate the Times, Plant, and Mirror Buildings and build a mixed-use development on 3.6 acres of land bounded by W. 1st Street, S. Spring Street, W. 2nd Street, and S. Broadway Street in the Central City Plan Area of the City of Los Angeles. The Project would demolish the existing Executive Building at the corner of W. 1st Street and S. Broadway and parking garage at the corner of W. 2nd Street and S. Broadway to allow for the development of the Project's mixed-use component. The Project will contain up to 1,127 residential units, and approximately 34,572 square feet of commercial space among the 37-story "North Tower" and 53-story "South Tower" constructed above a five-story parking podium. The space below the podium would contain an additional nine levels of subterranean parking. In total, the Project proposes up to 1,511,908 square feet of floor area.

II. LEGAL BACKGROUND

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an environmental impact report ("EIR") (except in certain limited circumstances). *See, e.g.*, Pub. Res. Code § 21100. The EIR is the very heart of CEQA. *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652. "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." *Communities for a Better Environment v. Calif. Resources Agency* (2002) 103 Cal. App. 4th 98, 109.

CEQA has two primary purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 Cal. Code Regs. ("CEQA Guidelines") § 15002(a)(1). "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.'" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs*. (2001) 91 Cal. App. 4th 1344, 1354 ("Berkeley Jets"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. CEQA Guidelines § 15002(a)(2) and (3); see also, *Berkeley Jets*, 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines §15002(a)(2). If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has

"eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." Pub. Res. Code § 21081; CEQA Guidelines § 15092(b)(2)(A) & (B). The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 732 (Cal. App. 5th Dist. 1990).

The EIR is the very heart of CEQA "and the integrity of the process is dependent on the adequacy of the EIR." *Berkeley Jets*, 91 Cal. App. 4th 1109, 1355. CEQA requires that a lead agency analyze all potentially significant environmental impacts of its proposed actions in an EIR. Pub. Res. Code § 21100(b)(1); Guidelines § 15126(a); *Berkeley Jets*, 91 Cal.App.4th 1344, 1354. The EIR must not only identify the impacts, but must also provide "information about how adverse the impacts will be." *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818, 831. The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. *Kings County Farm Bureau*, 221 Cal.App.3d 692, 732. "The 'foremost principle' in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." *Communities for a Better Env't*, 103 Cal.App.4th 98, 109.

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added), quoting, *Laurel Heights Improvement Assn. v. Regents of University of California*, 47 Cal. 3d 376, 391 409, fn. 12 (1988). A prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal. App. 4th 713, 722; *Galante Vineyards v. Monterey Peninsula Water Management Dist*. (1997) 60 Cal. App. 4th 1109, 1117; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal. App. 4th 931, 946. As discussed below, and in the attached expert comment letters of expert Dr. Smallwood, expert consulting firm SWAPE, and Mr. Smith, the EIR for this Project fails to adequately analyze and mitigate the Project's impacts.

The lead agency must evaluate comments on the draft EIR and prepare written responses in the final EIR ("FEIR"). Pub. Res. Code § 21091(d). The FEIR must include a "detailed" written response to all "significant environmental issues" raised by commenters. As the court stated in *City of Long Beach v. LA USD* (2009) 176 Cal.App.4th 889, 904:

> The requirement of a detailed written response to comments helps to ensure that the lead agency will fully consider the environmental consequences of a decision before it is made, that the decision is well informed and open to public scrutiny, and that public participation in the environmental review process is meaningful.

The FEIR's responses to comments must be detailed and must provide a reasoned, good faith analysis. CEQA Guidelines § 15088(c). Failure to provide a substantive response to comment render the EIR legally inadequate. *Rural Land Owners Assoc. v. City Council* (1983) 143 Cal.App.3d 1013, 1020.

The responses to comments on a draft EIR must state reasons for rejecting suggested mitigation measures and comments on significant environmental issues. "Conclusory statements unsupported by factual information" are not an adequate response. CEQA Guidelines §§ 15088(b), (c); *Cleary v. County of Stanislaus* (1981) 118 Cal.App.3rd 348. The need for a substantive, detailed response is particularly appropriate when comments have been raised by experts or other agencies. *Berkeley Keep Jets*, 91 Cal.App.4th at 1367; *People v. County of Kern* (1976) 62 Cal.App.3d 761. A reasoned analysis of the issue and references to supporting evidence are required for substantive comments raised. *Calif. Oak Found. v. Santa Clarita* (2005) 133 Cal.App.4th 1219.

III. DISCUSSION

A. The City Unduly Restrains the Project's Alternatives and Their Implementation.

An overly narrow definition of project objectives renders the alternatives analysis inadequate. To narrowly define the primary "objective" of the proposed project itself constitutes a violation of CEQA since such a restrictive formulation would improperly foreclose consideration of alternatives. See, *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, holding that when project objectives are defined too narrowly an EIR's treatment of analysis may also be inadequate. As a leading treatise on CEQA compliance cautions, "[t]he case law makes clear that…overly narrow objectives may unduly circumscribe the agency's consideration of project alternatives." Remy, Thomas, Moose & Manley, Guide to CEQA (Solano Books, 2007), p. 589.

CEQA prohibits a project sponsor from limiting its ability to implement the project in a way that precludes it from implementing reasonable alternatives to the project. *See Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 736 (alternatives may not be artificially limited by applicant's prior contractual commitments that would prevent sponsor from implementing reasonable alternative). The fact that a proposed alternative does not meet all of the Project Objectives is not an appropriate basis to eliminate impact-reducing project alternatives from analysis in an EIR. (14 Cal. Code Regs § 15126.6(c), (f)).

The EIR identifies several significant environmental impacts the Project will have, as well as the project alternatives that alleviate these impacts. Yet the City failed to impose a project alternative that would reduce environmental impacts because they do not meet all of the Project's stringent objectives. For example, Alternative 5 would avoid the Project's significant

and unavoidable impacts to historical resources, associated with air quality standards, and related to construction noise. DEIR, p. V-205. However, this alternative was not selected in part because it did not meet all of the uses identified in the Project's objectives, and would not meet the objective to restore portions of the existing buildings "to the same extent as under the Project." DEIR, p. V-206. Additionally, Alternative 4 was not selected, although it would lessen or reduce the significant and unavoidable impacts to historical resources, air quality standards, and construction noise, because while it "would meet the Project's underlying purpose and primary objective . . . it would not *fully meet* the Objective's intent to provide publicly accessible open space and amenities *to the same extent* as the Project . . . ." DEIR, p. V-166–V-167.

By refusing to select a Project alternative that mitigates or reduces the Project's significant environmental impacts simply because the alternative does not entirely meet the narrowly defined Project objectives, the City has violated CEQA.

B. The EIR Fails to Adequately Analyze Historic and Cultural Aesthetic Impacts.

The site of the proposed Project includes five historical resources, including the Times, Plant, Mirror, and Executive buildings, as well as the parking structure. Despite these resources, the City asserts Senate Bill (SB) 743 applies to the Project and therefore the Project's aesthetic impacts are not considered significant impacts on the environment. DEIR, p. II-13–14. It makes this finding despite a subsection of SB 743 that excludes impacts to historical resources from this aesthetic exemption.

Codified within CEQA section 21099 et seq., SB 743 states "[a]esthetic . . . impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment." Pub. Res. Code § 21099(d)(1). However, the City is incorrect in concluding it is exempt from analyzing all aesthetic impacts caused by the Project because SB 743 goes on to state that for the purposes of this section, "aesthetic impacts do not include impacts on historical or cultural resources." Pub. Res. Code § 21099(d)(2)(B). The City therefore cannot use SB 743 as an excuse to not mitigate aesthetic impacts to historical resources that are significant.

CEQA gives historic resources special recognition. *See Friends of Sierra Madre v. City of Sierra Madre* (2001) 25 C4th 165, 186; Citizens for a Sustainable Treasure Island v. City & County of San Francisco (2014) 227 Cal. App. 4th 1036, 1065. Objects of historical significance fall within CEQA's definition of "environment." Pub. Res. Code § 21060.5. Therefore, if a project has significant impacts on a historical resource, it has significant environmental impacts.

A substantial adverse change of a historical resource is considered a significant impact on the environment. CEQA Guidelines § 15064.5(b). Substantial adverse changes include "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings" resulting in the significance of the resource being "materially impaired." CEQA Guidelines §

15064.5(b)(1). Material impairments of historical resources occur when the project demolishes or adversely materially alters the physical characteristics of the historical resource that either conveys its historical significance and that justify its inclusion in or eligibility for inclusion in the California Register of Historical Resources or the local register of historical resources. *Id*. §§ 15064.5(b)(2)(A)–(C). These material impairments clearly include aesthetic changes to historical resources because physical characteristics of historical resources encompass the façade and structural design of these resources.

Here, the Project proposes to demolish the Executive Building and the accompanying parking structure. Since both structures are eligible for inclusion in the California Register of Historic Resources and their physical characteristics that make them eligible for such listing will be demolished, the Project will result in a material impairment of these historical resources. Additionally the Times, Plant, and Mirror Buildings are included in the local register of historic resources and are in the immediate surroundings of the Executive Building and parking structure. If the Project moves forward as planned, the impacts on the aesthetic quality of these buildings will be significant because the demolition of the Executive Building and parking structure will make room for two very large apartment buildings that will dwarf the Times, Plant, and Mirror Buildings and minimize the visibility of these historic resources.

Therefore, the Project will have significant adverse impacts on the aesthetics of historical resources and the City cannot use SB 743 as an excuse to not analyze these impacts. The City is required to analyze and mitigate these significant impacts.

C. The City Failed to Make Full and Accurate Reponses to Comments Concerning Aesthetic Impacts to Historical Resources.

While public participation is an essential part of the CEQA process, so is an agency's evaluation and response to public comments. Failure to comply with the requirement can lead to disapproval of a project. CEQA Guidelines Discussion, § 15088. An agency's responses to comments must specifically explain the reasons for rejecting suggestions received in comments and for proceeding with a project despite its environmental impacts. Such explanations must be fully supported with specific references to empirical information, scientific authority, and/or explanatory information. *Cleary v. County of Stanislaus* (1981) 118 Cal.App.3d 348, 357. The responses, moreover, must manifest a good faith, reasoned analysis; conclusory statements unsupported by factual information will not suffice. *People v. County of Kern* (1974) 39 Cal.App.3d 830, 841.

Here, the City continued to hide behind SB 743 when it responded in a cursory and inadequate way to a comment regarding the inadequacy of the EIR's analysis of aesthetic impacts on historical resources. *See* FEIR, p. 2-80–2-81. The City again pointed to SB 743 to assert that "the Project would result in the removal of the existing Executive Building and the parking structure, which are historic resources and, as such, may be considered to contribute to the aesthetic character under the [Los Angeles CEQA] Thresholds Guide. However, per ZI No.

2452 [which adopted SB 743], aesthetic impacts shall not be considered a significant impact for a qualifying mixed-use project in a Transit Priority Area, such as the Project." FEIR, p. 2-81. This response, as identified in the section above, is incorrect and erroneous because the City's reliance on SB 743 is inappropriate given the reading of the entire section, which requires agency's to still consider aesthetic impacts to historical resources.

The City's response is legally inadequate because its analysis is based on a select reading of SB 743 and ignores the rest of the statute excluding historical resources from the aesthetic impact exemption. This inadequate and conclusory response to a comment fails to meet CEQA's requirements. Responses such as this require the City to revise its EIR so that it fully evaluates and responds to public comments.

D. The Project May Have Significant Impacts on Special-Status Birds as a Result of Window Collisions.

Dr. Smallwood indicates that the Project, as proposed, will result in significant impacts on birds colliding with the Project's clear glass windows. Ex. A, p. 8. Specifically, Dr. Smallwood predicts "2,310 bird deaths per year" due to the Project. *Id*. Project illustrations show extensive use of glass in the facades of the Project's buildings. "[T]he project's façades would support at least 30,000 m^2 of glass windows . . . ." Ex. A, p. 1. "Adding to collison hazards would be the abundant use of window recessing, over-window balconies, between-building interior spaces, and as depicted in the EIR, use of transparent glass and abundant interior lighting at night." *Id*. Making matters worse, the Project, with these potentially harmful features, is proposed to be constructed where eBird records indicate "43 special-status species of birds occur near the site . . . 14 of which were seen on property immediately adjacent to the site." Ex. A, p. 2.

Despite emerging scientific literature about window collisions as one of the largest sources of avian mortality worldwide, the City and the EIR do not assess this potential impact. Additionally, the EIR "provides no analysis of cumulative impacts on birds caused by window collisions in the City, nor any analysis of the proposed project's contribution to cumulative impacts of window collisions. An RDEIR is required to fully analyze and mitigate these impacts.

In order to mitigate these potential impacts to birds, Dr. Smallwood recommends the following mitigation measures:

- Marking windows
- Managing outdoor landscape vegetation
- Managing indoor landscape vegetation
- Managing nocturnal lighting
- Designing to minimize transparency through two parallel facades
- Designing to minimize views of interior plants
- Landscaping to increase distances between windows and trees and shrubs

Ex. A, p. 12–13.

Dr. Smallwood also suggests adherence to available guidelines on building design intended to minimize collision hazards to birds, such as those by the American Bird Conservancy ("ABC"). Ex., p. 13. ABC recommends: (1) minimizing use of glass; (2) placing glass behind some type of screening (grilles, shutters, exterior shades); (3) using glass with inherent properties to reduce collisions, such as patterns, window films, decals or tape; and (4) turning off lights during migration seasons. *Id*.

Here, there is ample evidence to support a fair argument that the Project will result in many collision fatalities of birds, and that this may result in a significant impact. Yet the EIR makes no attempt to analyze this potentially significant impact. An RDEIR is required to fully analyze and mitigate this impact.

E. The Project's Emissions Were Improperly Analyzed Because the EIR Uses Incorrect and Unsubstantiated Input Parameters.

Environmental consulting firm SWAPE reviewed the EIR. SWAPE found that the EIR's air quality model contained incorrect and unsubstantiated input parameters. As a result, the EIR's air model may have underestimated emissions and cannot be relied upon as substantial evidence to determine that the Project's impacts will be less than significant. SWAPE's analysis can be found in Exhibit B, pages 1-10.

F. The FEIR Fails to Adequately Respond to Comments Concerning Mitigation Measures for Construction Air Quality Impacts.

The Project will have significant impacts on air quality. However, the FEIR refuses to impose feasible mitigation measures that would reduce these impacts.

Expert agency South Coast Air Quality Management District ("SCAQMD") submitted a letter requesting that the City require the use of zero-emission ("ZE") or near-zero emission ("NZE") on-road haul trucks and require that construction vendors, contractors, and/or haul truck operators commit to using 2010 model year or newer engines that meet the California Air Resources Board's ("CARB") 2010 engine emissions standards. FEIR, p. 2-10–2-11. The FEIR refuses to require these mitigation measures, rejecting them for impracticality and unfeasibility reasons, and because it already has to comply with CARB's 2008 Truck and Bus Regulation. FEIR, p. 2-20–2-21.

First, the FEIR references a handful of reports to conclude that the use of ZE and NZE trucks is not feasible at this time. *Id*. However, the FEIR does not mention how many ZE or NZE trucks are in fact available, just that there are barriers to widespread availability of them and their required infrastructure at this time, and that a fleet wouldn't likely be available during the project. *Id*. SCAQMD also suggested the City require this mitigation measure as part of the bid or contract specification. FEIR, p. 2-18. The City fails to respond to this suggestion, despite the

contractors' likely greater knowledge of the availability of these vehicles than the City. The FEIR is also quick to note that the Project would exceed NOx emissions during construction for up to four days when a continuous pour would be used for the two foundations. FEIR, p. 2-21. The FEIR cannot rely on this limited time frame in which NOx emissions will be significant. It must adopt feasible mitigation measures that will bring the impacts below a significance level no matter how short the impact will last. The City's excuses for failing to adopt this mitigation measure are conclusory and cannot be used to support a finding of infeasibility.

Second, the FEIR states that it already requires compliance with CARB's 2008 Truck and Bus Regulation, which reduces NOx, PM10, and PM2.5 emissions from existing diesel vehicles operating in California so it does not believe that a mitigation measure requiring the use of CARB's 2010 engine emission standards. FEIR, p. 2-21. Requiring this additional mitigation measure could likely assist in reducing significant air quality impacts, and just because another mitigation measure would similarly reduce significant air quality impacts, does not make the additional mitigation measure infeasible. Therefore, the City's excuse for failing to adopt this mitigation measure is also conclusory and it must adopt the mitigation measure if feasible.

The FEIR's failure to implement SCAQMD's suggested mitigation measures to reduce the significant impacts on air quality fails to meet CEQA's requirements and the City must implement them.

G. Updated Air Quality Model Demonstrates That the Project Will Have Significant Air Quality Impacts From Greenhouse Gas Emissions.

SWAPE found that there would be significant greenhouse gas emissions despite the EIR's finding that the Project's greenhouse gas emissions would be less than significant. As a result, the City must prepare a RDEIR which takes into account SWAPE's findings and analyze and mitigate this significant impact. SWAPE's analysis and mitigation measures can be found in Exhibit B, pages 23-33.

H. The Project Will Have a Significant Construction-Related Health Risk Impact That Has Not Been Adequately Analyzed or Mitigated.

SWAPE found that the EIR failed to conduct both a construction and operational health risk assessment. Without such an analysis, the EIR fails to include substantial evidence that the Project's emissions will be less than significant. Additionally, SWAPE has suggested several mitigation measures to reduce emission impacts to less than significant levels. SWAPE's analysis and mitigation measures can be found in Exhibit B, pages 12-23.

I. The EIR Fails to Accurately Disclose and Analyze Traffic Impacts.

Traffic expert found multiple deficiencies in the EIR's traffic analysis. As such, the EIR has failed to adequately disclose, discuss, and analyze the Project's impacts on traffic. Mr. Smith's analysis can be found in Exhibit C.

J. The EIR Fails to Address the Potential Significant Indoor Air Quality Impacts on the Health of Future Residents of the Project.

Formaldehyde is a known human carcinogen. Many composite wood products typically used in residential and office building construction contain formaldehyde-based glues which off-gas formaldehyde over a very long time period. The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particle board. These materials are commonly used in residential and office building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims. Given the prominence of materials with formaldehyde-based resins that will be used in constructing the Project and the residential buildings, there is a significant likelihood that the Project's emissions of formaldehyde to air will result in very significant cancer risks to future residents and workers in the buildings. Even if the materials used within the buildings comply with the Airborne Toxic Control Measures (ATCM) of the California Air Resources Board (CARB), significant emissions of formaldehyde may still occur.

The residential buildings will have significant impacts on air quality and health risks by emitting cancer-causing levels of formaldehyde into the air that will expose workers and residents to cancer risks well in excess of SCAQMD's threshold of significance. A 2018 study by Chan et al. (attached as Exhibit D) measured formaldehyde levels in new structures constructed after the 2009 CARB rules went into effect. Even though new buildings conforming to CARB's ATCM had a 30% lower median indoor formaldehyde concentration and cancer risk than buildings built prior to the enactment of the ATCM, the levels of formaldehyde will still pose cancer risks greater than 100 in a million, well above the 10 in one million significance threshold established by the SCAQMD.

Based on expert comments submitted on other similar projects and assuming all the Project's and the residential building materials are compliant with the California Air Resources Board's formaldehyde airborne toxics control measure, future residents and employees using the Project will be exposed to a cancer risk from formaldehyde greater than the SCAQMD's CEQA significance threshold for airborne cancer risk of 10 per million. Currently, the City does not have any idea what risk will be posed by formaldehyde emissions from the Project or the residences.

The City has a duty to investigate issues relating to a project's potential environmental impacts. *See County Sanitation Dist. No. 2 v. County of Kern*, (2005) 127 Cal.App.4th 1544, 1597–98. ["[U]nder CEQA, the lead agency bears a burden to investigate potential environmental impacts."]. "If the local agency has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record.

Deficiencies in the record may actually enlarge the scope of fair argument by lending a logical plausibility to a wider range of inferences." *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311. Given the lack of study conducted by the City on the health risks posed by emissions of formaldehyde from new residential projects, a fair argument exists that such emissions form the Project may pose significant health risks. As a result, the City must prepare a RDEIR which calculates the health risks that the formaldehyde emissions may have on future residents and workers and identifies appropriate mitigation measures.

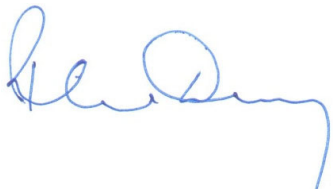
IV. THE CITY SHOULD PREPARE AND RECIRCULATE A REVISED DEIR

A revised draft environmental impact report ("RDEIR") should be prepared and circulated for full public review to address the impacts identified above and to propose feasible mitigation measures. CEQA requires re-circulation of an EIR when significant new information is added to the EIR following public review but before certification. (Pub. Res. Code § 21092.1.) The CEQA Guidelines clarify that new information is significant if "the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project" including, for example, "a disclosure showing that . . . [a] new significant environmental impact would result from the project." (14 CCR § 15088.5.) The above significant environmental impacts have not been analyzed in the EIR and must be addressed in an RDEIR that is re-circulated for public review.

V. CONCLUSION

For the foregoing reasons, SAFER believes that the Times Mirror Square DEIR and FEIR are wholly inadequate. SAFER urges the Hearing Officer and Advisory Agency to refrain from certifying the FEIR or recommending approval of the Times Mirror Square Project in order to allow staff additional time to address the concerns raised herein. Thank you for considering our comments and please include this letter in the record of proceedings for this project.

Sincerely,



Richard Toshiyuki Drury
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Exhibit A

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William Lamborn
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13 October 2019

RE: Times Mirror Square Project

Dear Mr. Lamborn,

I write to comment on the City of Los Angeles (2019a,b) DEIR and FEIR prepared for the Times Mirror Square Project, which I understand would add 1,135,803 ft² of construction floor space between a 37-story building and a 53-story building, and including 34,572 ft² of commercial floor space and 1,127 residential units on 3.6 acres of land. Assuming 25% of the buildings' façades would be composed of steel or concrete, I estimate the project's façades would support at least 30,000 m² of glass windows, which would pose collision hazards to birds. Adding to the collision hazards would be the abundant use of window recessing, over-window balconies, between-building interior space, and as depicted in the EIR, use of transparent glass and abundant interior lighting at night. I write to comment on bird-window collisions that would result from this project – a type of impact that is not addressed in the DEIR or FEIR.

My qualifications for preparing expert comments are the following. I hold a Ph.D. degree in Ecology from University of California at Davis, where I subsequently worked for four years as a post-graduate researcher in the Department of Agronomy and Range Sciences. My research has been on animal density and distribution, habitat selection, habitat restoration, interactions between wildlife and human infrastructure and activities, conservation of rare and endangered species, and on the ecology of invading species. I perform research on wildlife mortality caused by wind turbines, electric distribution lines, agricultural practices, and road traffic. I authored numerous papers on special-status species issues, including "Using the best scientific data for endangered species conservation" (Smallwood et al. 1999), and "Suggested standards for science applied to conservation issues" (Smallwood et al. 2001). I served as Chair of the Conservation Affairs Committee for The Wildlife Society – Western Section. I am a member of The Wildlife Society and the Raptor Research Foundation, and I've been a part-time lecturer at California State University, Sacramento. I was Associate Editor of wildlife biology's premier scientific journal, The Journal of Wildlife Management, as well as of Biological Conservation, and I was on the Editorial Board of Environmental Management. I have performed wildlife surveys in California for thirty-three years, including at many proposed project sites. My CV is attached.

BIOLOGICAL IMPACTS ASSESSMENT

Based on recent eBird records, 43 special-status species of birds occur near the site of the proposed project (Table 1), 14 of which were seen on property immediately adjacent to the site. Fifteen species have been known to collide with windows (Table 1). Many of these species are undoubtedly already experiencing annual mortality caused by window collisions in Los Angeles, but the proposed new project would substantially add window-collision hazards to birds flying over Los Angeles.

WINDOW COLLISIONS

Recent advances in structural glass engineering have contributed to a proliferation of glass windows on building façades. This proliferation is readily observable in newer buildings and in recent project planning documents, and it is represented by a worldwide 20% increase in glass manufacturing for building construction since 2016. Increasing window to wall ratios and glass façades have become popular for multiple reasons, including a growing demand for 'daylighting.' Not only is glass a major feature of the Times Mirror Square Project, but depictions in the EIR are of buildings gleaming in transparent glass in daylight and lit from the interior at night.

The EIR has not been prepared with the benefit of survey visits by wildlife biologists, so it inadequately informs the public about avian use of the area. Surveys are needed to learn how many of each bird species fly through the area and at what times of day (and night). Nocturnal surveys can be performed using a thermal-imaging camera or radar. Such surveys would inform of collision risk, and could inform mitigation strategies involving interior light management and design modifications to facades facing the prevailing approach directions of migrating birds. Below I review the bird-window collision issue, hypothesized causal factors and recommended mitigation solutions. I also predict bird-window collision rates based on studies performed across the USA at structures ranging widely in height, window-to-wall ratio, types of glass, orientation, and structural context. My aim is to make a robust prediction from this range of study conditions, and to present the associated large confidence interval that I believe is appropriate in the face of uncertainty over how many birds fly through the project area and what proportion of the birds are more susceptible that others to window collision.

Glass-façades of buildings intercept and kill many birds, but these façades are differentially hazardous to birds based on spatial extent, contiguity, orientation, and other factors. At Washington State University, Johnson and Hudson (1976) found 266 bird fatalities of 41 species within 73 months of monitoring of a three-story glass walkway (no fatality adjustments attempted). Prior to marking the windows to warn birds of the collision hazard, the collision rate was 84.7 per year. At that rate, and not attempting to adjust the fatality estimate for the proportion of fatalities not found, 4,235 birds were likely killed over the 50 years since the start of their study, and that's at a relatively small building façade (Figure 1). Accounting for the proportion of fatalities not found, the number of birds killed by this walkway over the last 50 years would have been about 12,705. And this is just for one 3-story, glass-sided walkway between two college campus buildings.

Table 1. *Reports of special-status species occurrences within close proximity of the proposed project site.*

Common name	***Species name***	**Status**	**eBird post(s)**	**Known window collision fatalities**
California gull	Larus californicus	TWL	Adjacent	
Caspian tern	*Hydroprogne caspia*	BCC	Adjacent	
Turkey vulture	*Cathartes aura*	FGC 3503.5	Adjacent	
Osprey	*Pandion haliaetus*	TWL, FGC 3503.5	Nearby	
Swainson's hawk	*Buteo swainsoni*	CT, FGC 3503.5	Nearby	
Red-tailed hawk	*Buteo jamaicensis*	FGC 3503.5	Adjacent	Yes
Red-shouldered hawk	*Buteo lineatus*	FGC 3503.5	Adjacent	Yes
Northern harrier	*Circus cyaneus*	SSC3, FGC 3503.5	Nearby	
White-tailed kite	*Elanus leucurus*	CFP, FGC 3503.5	Nearby	
Sharp-shinned hawk	*Accipiter striatus*	FGC 3503.5	Nearby	Yes
Cooper's hawk	*Accipiter cooperi*	FGC 3503.5	Nearby	Yes
American kestrel	*Falco sparverius*	FGC 3503.5	Adjacent	Yes
Merlin	*Falco columbarius*	FGC 3503.5	Adjacent	Yes
Prairie falcon	*Falco mexicanus*	FGC 3503.5	Regional	
Peregrine falcon	*Falco peregrinus*	CE, CFP, FGC 3503.5	Adjacent	Yes
Barn owl	*Tyto alba*	FGC 3503.5	Adjacent	
Great-horned owl	*Bubo virginianus*	FGC 3503.5	Nearby	
Burrowing owl	*Athene cunicularia*	BCC, SSC2, FGC 3503.5	Adjacent	
Western screech-owl	*Megascops kennicottii*	FGC 3503.5	Regional	
Vaux's swift	*Chaetura vauxi*	SCC2	Adjacent	
Black swift	*Cypseloides niger*	SSC3	Nearby	
Allen's hummingbird	*Selasphorus sasin*	BCC	Adjacent	Yes
Costa's hummingbird	*Calypte costae*	BCC	Adjacent	Yes
Nuttall's woodpecker	*Picoides nuttallii*	BCC	Nearby	
Lewis's woodpecker	*Melanerpes lewis*	BCC	Nearby	
Horned lark	*Eremophila alpestris actia*	TWL	Regional	
California gnatcatcher	*Polioptila c. californica*	FT, SSC	Regional	
Willow flycatcher	*Empidonax trailii*	FE, CE	Nearby	
Vermilion flycatcher	*Pyrocephalus rubinus*	SSC2	Nearby	
Olive-sided flycatcher	*Contopus cooperi*	SSC2	Nearby	

Common name	***Species name***	**Status**	**eBird post(s)**	**Known window collision fatalities**
Purple martin	*Progne subis*	SSC2	Nearby	Yes
Oak titmouse	*Baeolophus inornatus*	BCC	Adjacent	Yes
Loggerhead shrike	*Lanius ludovicianus*	BCC, SSC2	Nearby	
Least Bell's vireo	*Vireo belli pusillus*	FE, CE	Regional	
Yellow warbler	*Setophaga petechia*	SSC2	Adjacent	Yes
Yellow-breasted chat	*Icteria virens*	SSC3	Nearby	Yes
Summer tanager	*Piranga rubra*	SSC1	Nearby	Yes
Bell's sage sparrow	*Amphispiza b. belli*	TWL	Nearby	
Oregon vesper sparrow	*Pooecetes gramineus affinis*	SSC2	Regional	
Grasshopper sparrow	*Ammodramus savannarum*	SSC2	Regional	Yes
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	BCC, SSC	Nearby	
Tricolored blackbird	*Agelaius tricolor*	CT, BCC	Nearby	
Lawrence's goldfinch	*Spinus lawrencei*	BCC	Nearby	

[1] Listed as FE and FT = federal endangered and threatened species, BCC = U.S. Fish and Wildlife Service Bird Species of Conservation Concern, CE and CT = California endangered and threatened species, SSC = California species of special concern (not threatened with extinction, but rare, very restricted in range, declining throughout range, peripheral portion of species' range, associated with habitat that is declining in extent), CFP = California Fully Protected (CDFW Code 3511), FGC 3503.5 = California Department of Fish and Wildlife Code 3503.5 (Birds of prey), and SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively (Shuford and Gardali 2008), and TWL = Taxa to Watch List (Shuford and Gardali 2008).

Figure 1. *A walkway connecting two buildings at Washington State University where one of the earliest studies of bird collision mortality found 85 bird fatalities per year prior to marking windows (254 annual deaths adjusted for the proportion not found). Given that the window markers have long since disappeared, this walkway has likely killed at least 12,705 birds since 1968, and continues to kill birds. Notice that the transparent glass on both sides of the walkway gives the impression of unimpeded airspace that can be navigated safely by birds familiar with flying between tree branches. Also note the reflected images of trees, which can mislead birds into seeing safe perch sites. Further note the distances of ornamental trees, which allow birds taking off from those trees to reach full speed upon arrival at the windows.*

Window collisions are often characterized as either the second or third largest source or human-caused bird mortality. The numbers behind these characterizations are often attributed to Klem's (1990) and Dunn's (1993) estimates of about 100 million to 1 billion bird fatalities in the USA, or more recently Loss et al.'s (2014) estimate of 365-988 million bird fatalities in the USA or Calvert et al.'s (2013) and Machtans et al.'s (2013) estimates of 22.4 million and 25 million bird fatalities in Canada, respectively. However, these estimates and their interpretation warrant examination because they were based on opportunistic sampling, volunteer study participation, and fatality monitoring by more inexperienced than experienced searchers.

Klem's (1990) estimate was based on speculation that 1 to 10 birds are killed per building per year, and this speculated range was extended to the number of buildings estimated by the US Census Bureau in 1986. Klem's speculation was supported by fatality monitoring at only two houses, one in Illinois and the other in New York. Also, the basis of his fatality rate extension has changed greatly since 1986. Whereas his estimate served the need to alert the public of the possible magnitude of the bird-window collision issue, it was highly uncertain at the time and undoubtedly outdated more than three decades hence. Indeed, by 2010 Klem (2010) characterized the upper end of his estimated range – 1 billion bird fatalities – as conservative. Furthermore, the estimate lumped species together as if all birds are the same and the loss of all birds to windows has the same level of impact.

Homes with birdfeeders are associated with higher rates of window collisions than are homes without birdfeeders (Kummer and Bayne 2015, Kummer et al. 2016a), so the developed area might pose even greater hazard to birds if it includes numerous birdfeeders. Another factor potentially biasing national or North American estimates low was revealed by Bracey et al.'s (2016) finding that trained fatality searchers found

2.6× the number of fatalities found by homeowners on the days when both trained searchers and homeowners searched around homes. The difference in carcass detection was 30.4-fold when involving carcasses volitionally placed by Bracey et al. (2016) in blind detection trials. This much larger difference in trial carcass detection rates likely resulted because their placements did not include the sounds that typically alert homeowners to actual window collisions, but this explanation also raises the question of how often homeowner participants with such studies miss detecting window-caused fatalities because they did not hear the collisions.

By the time Loss et al. (2014) performed their effort to estimate annual USA bird-window fatalities, many more fatality monitoring studies had been reported or were underway. Loss et al. (2014) were able to incorporate many more fatality rates based on scientific monitoring, and they were more careful about which fatality rates to include. However, they included estimates based on fatality monitoring by homeowners, which in one study were found to detect only 38% of the available window fatalities (Bracey et al. 2016). Loss et al. (2014) excluded all fatality records lacking a dead bird in hand, such as injured birds or feather or blood spots on windows. Loss et al.'s (2014) fatality metric was the number of fatalities per building (where in this context a building can include a house, low-rise, or high-rise structure), but they assumed that this metric was based on window collisions. Because most of the bird-window collision studies were limited to migration seasons, Loss et al. (2014) developed an admittedly assumption-laden correction factor for making annual estimates. Also, only 2 of the studies included adjustments for carcass persistence and searcher detection error, and it was unclear how and to what degree fatality rates were adjusted for these factors. Although Loss et al. (2014) attempted to account for some biases as well as for large sources of uncertainty mostly resulting from an opportunistic rather than systematic sampling data source, their estimated annual fatality rate across the USA was highly uncertain and vulnerable to multiple biases, most of which would have resulted in fatality estimates biased low.

In my review of bird-window collision monitoring, I found that the search radius around homes and buildings was very narrow, usually 2 meters. Based on my experience with bird collisions in other contexts, I would expect that a large portion of bird-window collision victims would end up farther than 2 m from the windows, especially when the windows are higher up on tall buildings. In my experience, searcher detection rates tend to be low for small birds deposited on ground with vegetation cover or woodchips or other types of organic matter. Also, vertebrate scavengers entrain on anthropogenic sources of mortality and quickly remove many of the carcasses, thereby preventing the fatality searcher from detecting these fatalities. Adjusting fatality rates for these factors – search radius bias, searcher detection error, and carcass persistence rates – would greatly increase nationwide estimates of bird-window collision fatalities.

Buildings can intercept many nocturnal migrants as well as birds flying in daylight. As mentioned above, Johnson and Hudson (1976) found 266 bird fatalities of 41 species within 73 months of monitoring of a four-story glass walkway at Washington State University (no adjustments attempted). Somerlot (2003) found 21 bird fatalities among 13 buildings on a university campus within only 61 days. Monitoring twice per week, Hager at al. (2008) found 215 bird fatalities of 48 species, or 55 birds/building/year,

and at another site they found 142 bird fatalities of 37 species for 24 birds/building/year. Gelb and Delacretaz (2009) recorded 5,400 bird fatalities under buildings in New York City, based on a decade of monitoring only during migration periods, and some of the high-rises were associated with hundreds of fatalities each. Klem et al. (2009) monitored 73 building façades in New York City during 114 days of two migratory periods, tallying 549 collision victims, nearly 5 birds per day. Borden et al. (2010) surveyed a 1.8 km route 3 times per week during 12-month period and found 271 bird fatalities of 50 species. Parkins et al. (2015) found 35 bird fatalities of 16 species within only 45 days of monitoring under 4 building façades. From 24 days of survey over a 48 day span, Porter and Huang (2015) found 47 fatalities under 8 buildings on a university campus. Sabo et al. (2016) found 27 bird fatalities over 61 days of searches under 31 windows. In San Francisco, Kahle et al. (2016) found 355 collision victims within 1,762 days under a 5-story building. Ocampo-Peñuela et al. (2016) searched the perimeters of 6 buildings on a university campus, finding 86 fatalities after 63 days of surveys. One of these buildings produced 61 of the 86 fatalities, and another building with collision-deterrent glass caused only 2 of the fatalities, thereby indicating a wide range in impacts likely influenced by various factors. There is ample evidence available to support my prediction that the proposed project would result in many collision fatalities of birds.

Project Impact Prediction

Predicting the number of bird collisions at a new project is challenging because the study of window collisions remains in its early stages. Researchers have yet to agree on a collision rate metric. Some have reported findings as collisions per building per year and some as collisions per building per day. Some have reported findings as collisions per m^2 of window. The problem with the temporal factor in the collision rate metrics has been monitoring time spans varying from a few days to 10 years, and even in the case of the 10-year span, monitoring was largely restricted to spring and fall migration seasons. Short-term monitoring during one or two seasons of the year cannot represent a 'year,' but monitoring has rarely spanned a full year. Using 'buildings' in the metric treats buildings as all the same size, when we know they are not. Using square meters of glass in the metric treats glass as the only barrier upon which birds collide against a building's façade, when we know it is not. It also treats all glass as equal, even though we know that collision risk varies by type of glass as well as multiple factors related to contextual settings.

Without the benefit of more advanced understanding of window collision factors, my prediction of project impacts will be uncertain. Klem's (1990) often-cited national estimate of avian collision rate relied on an assumed average collision rate of 1 to 10 birds per building per year, but studies since then have all reported higher rates of collisions 12 to 352 birds per building per year. Because the more recent studies were likely performed at buildings known or suspected to cause many collisions, collision rates from them could be biased high. By the time of these comments I had reviewed and processed results of bird collision monitoring at 181 buildings and façades for which bird collisions per m^2 of glass per year could be calculated and averaged (Johnson and Hudson 1976, O'Connell 2001, Somerlot 2003, Hager et al. 2008, Borden et al. 2010,

Hager et al. 2013, Porter and Huang 2015, Parkins et al. 2015, Kahle et al. 2016, Ocampo-Peñuela et al. 2016, Sabo et al. 2016, Barton et al. 2017, Schneider et al. 2018). These study results averaged 0.077 bird deaths per m^2 of glass per year (95% CI: 0.04-0.11). Looking over the proposed building design, I estimated the buildings would include at least 30,000 m^2 of glass windows, which applied to the mean fatality rate would predict **2,310 bird deaths per year (95% CI: 1,200-3,300)** at the buildings. The 50-year toll from this average annual fatality rate would be 115,500 bird deaths (95% CI: 60,000-165,000), which would continue until the buildings are either renovated to reduce bird collisions or they come down. The vast majority of these deaths would be of birds newly protected under Fish and Game Code section 3513, which was amended by Governor Newsom's signing of AB 454 on 27 September 2019 to reinstate as state law the recently repealed federal Migratory Bird Treaty Act. If the project moves forward as proposed, and annually kills thousands of birds protected by AB 454, the project will cause significant unmitigated impacts.

As mentioned earlier, the accuracy of my window collision predictions depends on factors known or hypothesized to affect window collision rates. However, from the national average collision rate, I used all the variation in collision rates that was available and which resulted from a wide range in building height, type of glass, indoor and outdoor landscaping, interior light management, window to wall ratio, and structural context of the façade. This variation contributed to a robust bird-window collision rate represented by a wide 95% confidence interval. According to the confidence interval, which again was based on the wide range of conditions in the underlying data, the proposed project built as designed at 100 locations would be predicted to kill between 1,200 and 3,300 birds per year at 95 of those 100 locations, leaving the other 5 to kill birds at rates either lower or higher than this range. Even at the low end of the interval, the death toll would be excessive, amounting to 60,000 bird deaths over 50 years. This impact would be significant, especially considering that the predicted fatality rate can be prevented by implementing appropriate mitigation measures. Below I will discuss hypothesized bird-window collision factors, and I will recommend mitigation measures.

Bird-Window Collision Factors

Below is a list of collision factors I found in the scientific literature. Following this list are specific notes and findings taken from the literature and my own experience.

(1) Inherent hazard of a structure in the airspace used for nocturnal migration or other flights
(2) Window transparency, falsely revealing passage through structure or to indoor plants
(3) Window reflectance, falsely depicting vegetation, competitors, or open airspace
(4) Black hole or passage effect
(5) Window or façade extent, or proportion of façade consisting of window or other reflective surface
(6) Size of window
(7) Type of glass

(8) Lighting, which is correlated with window extent and building operations
(9) Height of structure (collision mechanisms shift with height above ground)
(10) Orientation of façade with respect to winds and solar exposure
(11) Structural layout causing confusion and entrapment
(12) Context in terms of urban-rural gradient, or surrounding extent of impervious surface vs vegetation
(13) Height, structure, and extent of vegetation grown near home or building
(14) Presence of birdfeeders or other attractants
(15) Relative abundance
(16) Season of the year
(17) Ecology, demography and behavior
(18) Predatory attacks or cues provoking fear of attack
(19) Aggressive social interactions

(1) Inherent hazard of structure in airspace.—Not all of a structure's collision risk can be attributed to windows. Overing (1938) reported 576 birds collided with the Washington Monument in 90 minutes on one night, 12 September 1937. The average annual fatality count had been 328 birds from 1932 through 1936. Gelb and Delacretaz (2009) and Klem et al. (2009) also reported finding collision victims at buildings lacking windows, although many fewer than they found at buildings fitted with widows. The takeaway is that any building going up at the project site would likely kill birds, although the impacts of a glass-sided building would likely be much greater.

(2) Window transparency.—Widely believed as one of the two principal factors contributing to avian collisions with buildings is the transparency of glass used in windows on the buildings (Klem 1989). Gelb and Delacretaz (2009) felt that many of the collisions they detected occurred where transparent windows revealed interior vegetation.

(3) Window reflectance.—Widely believed as one of the two principal factors contributing to avian collisions with buildings is the reflectance of glass used in windows on the buildings (Klem 1989). Reflectance can deceptively depict open airspace, vegetation as habitat destination, or competitive rivals as self-images (Klem 1989). Gelb and Delacretaz (2009) felt that many of the collisions they detected occurred toward the lower parts of buildings where large glass exteriors reflected outdoor vegetation. Klem et al. (2009) and Borden et al. (2010) also found that reflected outdoor vegetation associated positively with collisions.

(4) Black hole or passage effect.—Although this factor was not often mentioned in the bird-window collision literature, it was suggested in Sheppard and Phillips (2015). The black hole or passage effect is the deceptive appearance of a cavity or darkened ledge that certain species of bird typically approach with speed when seeking roosting sites. The deception is achieved when shadows from awnings or the interior light conditions give the appearance of cavities or protected ledges. This factor appears potentially to be nuanced variations on transparency or reflectance or possibly an interaction effect of both of these factors.

(5) Window or façade extent.—Klem et al. (2009), Borden et al. (2010), Hager et al. (2013), and Ocampo-Peñuela et al. (2016) reported increased collision fatalities at buildings with larger reflective façades or higher proportions of façades composed of windows. However, Porter and Huang (2015) found a negative relationship between fatalities found and proportion of façade that was glazed.

(6) Size of window.—According to Kahle et al. (2016), collision rates were higher on large-pane windows compared to small-pane windows.

(7) Type of glass.—Klem et al. (2009) found that collision fatalities associated with the type of glass used on buildings. Otherwise, little attention has been directed towards the types of glass in buildings.

(8) Lighting.—Parkins et al. (2015) found that light emission from buildings correlated positively with percent glass on the façade, suggesting that lighting is linked to the extent of windows. Zink and Eckles (2010) reported fatality reductions, including an 80% reduction at a Chicago high-rise, upon the initiation of the Lights-out Program. However, Zink and Eckles (2010) provided no information on their search effort, such as the number of searches or search interval or search area around each building.

(9) Height of structure.—I found little if any hypothesis-testing related to building height, including whether another suite of factors might relate to collision victims of high-rises. Are migrants more commonly the victims of high-rises or of smaller buildings?

(10) Orientation of façade.—Some studies tested façade orientation, but not convincingly. Confounding factors such as the extent and types of windows would require large sample sizes of collision victims to parse out the variation so that some portion of it could be attributed to orientation of façade. Whether certain orientations cause disproportionately stronger or more realistic-appearing reflections ought to be testable through measurement, but counting dead birds under façades of different orientations would help.

(11) Structural layout.—Bird-safe building guidelines have illustrated examples of structural layouts associated with high rates of bird-window collisions, but little attention has been directed towards hazardous structural layouts in the scientific literature. An exception was Johnson and Hudson (1976), who found high collision rates at 3 stories of glassed-in walkways atop an open breezeway, located on a break in slope with trees on one side of the structure and open sky on the other, Washington State University.

(12) Context in urban-rural gradient.—Numbers of fatalities found in monitoring have associated negatively with increasing developed area surrounding the building (Hager et al. 2013), and positively with more rural settings (Kummer et al. 2016a).

(13) Height, structure and extent of vegetation near building.—Correlations have sometimes been found between collision rates and the presence or extent of vegetation

near windows (Hager et al. 2008, Borden et al. 2010, Kummer et al. 2016a, Ocampo-Peñuela et al. 2016). However, Porter and Huang (2015) found a negative relationship between fatalities found and vegetation cover near the building. In my experience, what probably matters most is the distance from the building that vegetation occurs. If the vegetation that is used by birds is very close to a glass façade, then birds coming from that glass will be less likely to attain sufficient speed upon arrival at the façade to result in a fatal injury. Too far away and there is probably no relationship. But 30 to 50 m away, birds alighting from vegetation can attain lethal speeds by the time they arrive at the windows.

(14) Presence of birdfeeders.—Dunn (1993) reported a weak correlation ($r = 0.13$, $P < 0.001$) between number of birds killed by home windows and the number of birds counted at feeders. However, Kummer and Bayne (2015) found that experimental installment of birdfeeders at homes increased bird collisions with windows 1.84-fold.

(15) Relative abundance.—Collision rates have often been assumed to increase with local density or relative abundance (Klem 1989), and positive correlations have been measured (Dunn 1993, Hager et al. 2008). However, Hager and Craig (2014) found a negative correlation between fatality rates and relative abundance near buildings.

(16) Season of the year.—Borden et al. (2010) found 90% of collision fatalities during spring and fall migration periods. The significance of this finding is magnified by 7-day carcass persistence rates of 0.45 and 0.35 in spring and fall, rates which were considerably lower than during winter and summer (Hager et al. 2012). In other words, the concentration of fatalities during migration seasons would increase after applying seasonally-explicit adjustments for carcass persistence. Fatalities caused by collisions into the glass façades of the project's building would likely be concentrated in fall and spring migration periods.

(17) Ecology, demography and behavior.—Klem (1989) noted that certain types of birds were not found as common window-caused fatalities, including soaring hawks and waterbirds. Cusa et al. (2015) found that species colliding with buildings surrounded by higher levels of urban greenery were foliage gleaners, and species colliding with buildings surrounded by higher levels of urbanization were ground foragers. Sabo et al. (2016) found no difference in age class, but did find that migrants are more susceptible to collision than resident birds.

(18) Predatory attacks.—Panic flights caused by raptors were mentioned in 16% of window strike reports in Dunn's (1993) study. I have witnessed Cooper's hawks chasing birds into windows, including house finches next door to my home and a northern mocking bird chased directly into my office window. Predatory birds likely to collide with the project's windows would include Peregrine falcon, red-shouldered hawk, Cooper's hawk, and sharp-shinned hawk.

(19) Aggressive social interactions.—I found no hypothesis-testing of the roles of aggressive social interactions in the literature other than the occasional anecdotal account of birds attacking their self-images reflected from windows. However, I have

witnessed birds chasing each other and sometimes these chases resulting in one of the birds hitting a window.

Window Collision Solutions

Given the magnitude of bird-window collision impacts, there are obviously great opportunities for reducing and minimizing these impacts going forward. Existing structures can be modified or retrofitted to reduce impacts, and proposed new structures can be more carefully sited, designed, and managed to minimize impacts. However, the costs of some of these measures can be high and can vary greatly, but most importantly the efficacies of many of these measures remain uncertain. Both the costs and effectiveness of all of these measures can be better understood through experimentation and careful scientific investigation. **Post-construction fatality monitoring should be an essential feature of any new building project**. Below is a listing of mitigation options, along with some notes and findings from the literature.

Any new project should be informed by preconstruction surveys of daytime and nocturnal flight activity. Such surveys can reveal the one or more façades facing the prevailing approach direction of birds, and these revelations can help prioritize where certain types of mitigation can be targeted. It is critical to formulate effective measures prior to construction, because post-construction options will be limited, likely more expensive, and probably less effective.

(1) Retrofitting to reduce impacts

(1A) Marking windows
(1B) Managing outdoor landscape vegetation
(1C) Managing indoor landscape vegetation
(1D) Managing nocturnal lighting

(1A) Marking windows.—Whereas Klem (1990) found no deterrent effect from decals on windows, Johnson and Hudson (1976) reported a fatality reduction of about 69% after placing decals on windows. In an experiment of opportunity, Ocampo-Peñuela et al. (2016) found only 2 of 86 fatalities at one of 6 buildings – the only building with windows treated with a bird deterrent film. At the building with fritted glass, bird collisions were 82% lower than at other buildings with untreated windows. Kahle et al. (2016) added external window shades to some windowed façades to reduce fatalities 82% and 95%. Many external and internal glass markers have been tested experimentally, some showing no effect and some showing strong deterrent effects (Klem 1989, 1990, 2009, 2011; Klem and Saenger 2013; Rössler et al. 2015).

Following up on the results of Johnson and Hudson (1976), I decided to mark windows of my home, where I have documented 5 bird collision fatalities between the time I moved in and 6 years later. I marked my windows with decals delivered to me via US Postal Service from a commercial vendor. I have documented no fatalities at my windows during the 8 years hence. On 8 December 2018, I photographed a ruby-

crowned kinglet pulling up short of my window (Figure 2), right at one of my installed markers. In my assessment, markers can be effective in some situations.

Figure 2. *Ruby-crowned kinglet puts on the brakes in front of a decal I applied to mark windows of my home, 8 December 2018. This window killed birds prior to marking, but I have found no window collision victims since marking the windows. Windows with attractive built-in marking are commercially available.*

(2) Siting and Designing to minimize impacts

(2A) Deciding on location of structure
(2B) Deciding on façade and orientation
(2C) Selecting type and sizes of windows
(2D) Designing to minimize transparency through two parallel façades
(2E) Designing to minimize views of interior plants
(2F) Landscaping to increase distances between windows and trees and shrubs

(3) Monitoring for adaptive management to reduce impacts

(3A) Systematic monitoring for fatalities to identify seasonal and spatial patterns
(3B) Adjust light management, window marking and other measures as needed.

Guidelines on Building Design

If the project goes forward, it should at a minimum adhere to available guidelines on building design intended to minimize collision hazards to birds. The American Bird Conservancy (ABC) produced an excellent set of guidelines recommending actions to: (1) Minimize use of glass; (2) Placing glass behind some type of screening (grilles, shutters, exterior shades); (3) Using glass with inherent properties to reduce collisions, such as patterns, window films, decals or tape; and (4) Turning off lights during migration seasons (Sheppard and Phillips 2015). The City of San Francisco (San Francisco Planning Department 2011) also has a set of building design guidelines, based on the excellent guidelines produced by the New York City Audubon Society (Orff et al. 2007). The ABC document and both the New York and San Francisco documents provide excellent alerting of potential bird-collision hazards as well as many visual examples. The San Francisco Planning Department's (2011) building design guidelines are more comprehensive than those of New York City, but they could have gone further. For example, the San Francisco guidelines probably should have also covered scientific monitoring of impacts as well as compensatory mitigation for impacts that could not be

avoided, minimized or reduced. Monitoring and the use of compensatory mitigation should be incorporated at any new building project because the measures recommended in the available guidelines remain of uncertain effectiveness, and even if these measures are effective, they will not reduce collision fatalities to zero. The only way to assess effectiveness and to quantify post-construction fatalities is to monitor the project for fatalities.

CUMULATIVE IMPACTS

City of Los Angeles (2019a,b) provides no analysis of cumulative impacts on birds caused by window collisions in the City, nor any analysis of the proposed project's contribution to cumulative impacts of window collisions. This missing analysis is a critical shortfall, because bird abundance across North American has declined 29% over the last 48 years (Rosenberg et al. 2019). The proposed project alone is predicted to kill 2,310 bird deaths per year (95% CI: 1,200-3,300), which would add to many thousands more killed by windows in Los Angeles. City of Los Angeles needs to provide an estimate of the extent of windows already constructed, as well as an estimate of projected future extent of windows in the City. From such estimates, the City's cumulative toll on birds colliding with windows can be estimated.

MITIGATION

Bird surveys need to be performed to adequately characterize flight patterns through the project area. These surveys need to inform a revised EIR, which should require adherence to the available guidelines on minimizing bird-window collisions (see earlier comments). Compensatory mitigation should be formulated for those collision fatalities that cannot be avoided through implementation of guidelines. Unavoidable collision fatalities should be measured through two or more years of post-construction fatality monitoring, and the revised EIR should tie levels of compensatory mitigation to threshold fatality rates.

Fund Wildlife Rehabilitation Facilities

Compensatory mitigation ought also to include funding contributions to wildlife rehabilitation facilities to cover the costs of injured animals that will be delivered to these facilities for care. Most of the wildlife injuries will likely be caused by window collisions. But the project's impacts can also be offset by funding the treatment of injuries to animals caused by other buildings, electric lines, cars, and house cats.

Thank you for your attention,

Shawn Smallwood, Ph.D.

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Curriculum Vitae

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Born May 3, 1963 in Sacramento, California. Married, father of two.

Ecologist

Expertise

- Finding solutions to controversial problems related to wildlife interactions with human industry, infrastructure, and activities;
- Wildlife monitoring and field study using GPS, thermal imaging, behavior surveys;
- Using systems analysis and experimental design principles to identify meaningful ecological patterns that inform management decisions.

Education

Ph.D. Ecology, University of California, Davis. September 1990.
M.S. Ecology, University of California, Davis. June 1987.
B.S. Anthropology, University of California, Davis. June 1985.
Corcoran High School, Corcoran, California. June 1981.

Experience

- 477 professional publications, including:
- 81 peer reviewed publications
- 24 in non-reviewed proceedings
- 370 reports, declarations, posters and book reviews
- 8 in mass media outlets
- 87 public presentations of research results at meetings
- Reviewed many professional papers and reports
- Testified in 4 court cases.

Editing for scientific journals: Guest Editor, *Wildlife Society Bulletin*, 2012-2013, of invited papers representing international views on the impacts of wind energy on wildlife and how to mitigate the impacts. Associate Editor, *Journal of Wildlife Management*, March 2004 to 30 June 2007. Editorial Board Member, *Environmental Management*, 10/1999 to 8/2004. Associate Editor, *Biological Conservation*, 9/1994 to 9/1995.

Member, Alameda County Scientific Review Committee (SRC), August 2006 to April 2011. The

five-member committee investigated causes of bird and bat collisions in the Altamont Pass Wind Resource Area, and recommended mitigation and monitoring measures. The SRC reviewed the science underlying the Alameda County Avian Protection Program, and advised the County on how to reduce wildlife fatalities.

Consulting Ecologist, 2004-2007, California Energy Commission (CEC). Provided consulting services as needed to the CEC on renewable energy impacts, monitoring and research, and produced several reports. Also collaborated with Lawrence-Livermore National Lab on research to understand and reduce wind turbine impacts on wildlife.

Consulting Ecologist, 1999-2013, U.S. Navy. Performed endangered species surveys, hazardous waste site monitoring, and habitat restoration for the endangered San Joaquin kangaroo rat, California tiger salamander, California red-legged frog, California clapper rail, western burrowing owl, salt marsh harvest mouse, and other species at Naval Air Station Lemoore; Naval Weapons Station, Seal Beach, Detachment Concord; Naval Security Group Activity, Skaggs Island; National Radio Transmitter Facility, Dixon; and, Naval Outlying Landing Field Imperial Beach.

Fulbright Research Fellow, Indonesia, 1988. Tested use of new sampling methods for numerical monitoring of Sumatran tiger and six other species of endemic felids, and evaluated methods used by other researchers.

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Exhibit B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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October 15, 2019

Richard Drury
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Subject: Comments on the Times Mirror Square Project

Dear Mr. Drury,

We have reviewed the March 2019 Draft Environmental Impact Report ("DEIR") for the Times Mirror Square Project ("Project") located in the City of Los Angeles ("City"). The Project proposes to demolish an existing 183,758 square foot executive building and 6-story parking garage in order to construct two buildings with 1,127 residential units and 34,572 square feet of restaurant space, for a total of 1,135,803 square feet of new development. The Project also proposes to rehabilitate three existing buildings, totaling 376,105 square feet.

Our review concludes that the DEIR fails to adequately evaluate the Project's Air Quality, Health Risk, and Greenhouse Gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated DEIR should be prepared to adequately assess and mitigate the potential air quality and health risk impacts that the project may have on the surrounding environment.

Air Quality

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.[1] CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act (CEQA) requires that such changes be justified by substantial evidence.[2] Once all of the values are inputted into the model, the Project's

[1] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.
[2] Ibid, p. 1, 9.

construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions and make known which default values were changed as well as provide justification for the values selected.[3]

Review of the Project's air modeling demonstrates that the DEIR underestimates emissions associated with Project activities. As previously stated, the DEIR's air quality analysis relies on air pollutant emissions calculated using CalEEMod. When reviewing the Project's CalEEMod output files, provided in Appendix C to the DEIR, we found that several of the values inputted into the model were not consistent with information disclosed in the DEIR. As a result, the Project's construction and operational emissions are underestimated. An updated DEIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

Failure to Include All Proposed Land Uses

Review of the Project's CalEEMod output files demonstrates that not all of the land uses proposed by the DEIR were included in the model. As a result, the Project's construction and operational emissions may be underestimated.

According to the DEIR, the proposed Towers would include approximately 34,572 square feet of restaurant uses (see excerpt below) (p. II-30, Table II-2).

TABLE II-2
PROPOSED DEVELOPMENT[A]

North and South Towers Uses	North Tower	South Tower	Total
Residential Uses			
Studio	90 Units	0	90 Units
I Bedroom	166 Units	380 Units	546 Units
1 Bedroom + Den	60 Units	100 Units	160 Units
2 Bedroom	132 Units	192 Units	324 Units
3 Bedroom	0 Units	4 Units	4 Units
Penthouse	2 Units	1 Unit	3 Units
Total Residential Units	**450 Units**	**677 Units**	**1,127 Units**
Total Residential Floor Area			*1,071,692 sf*
Non-Residential Uses			
Loading			2,586 sf
Restaurant			34,572 sf
Total Non-Residential Floor Area			*64,111 sf*
Proposed New Floor Area in North and South Towers			**1,135,803 sf**

[3] Supra, fn 1, p. 11, 12 – 13. A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.

Review of the Project's CalEEMod output files for the Towers, however, demonstrates that the restaurant land use was not included (see excerpt below) (Appendix C, pp. 135, 181).

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	37.60	1000sqft	0.86	37,597.00	0
Enclosed Parking with Elevator	1,754.00	Space	0.68	697,600.00	0
Other Non-Asphalt Surfaces	74.64	1000sqft	0.09	74,643.00	0
City Park	0.92	Acre	0.09	28,777.00	0
Health Club	25.62	1000sqft	0.59	25,618.00	0
Apartments High Rise	1,127.00	Dwelling Unit	0.80	1,071,692.00	1894

As you can see in the excerpt above, the Towers air model fails to include the proposed restaurant land use. The land usage parameters, including land use types and sizes, are used throughout CalEEMod to determine default variables and emission factors that go into the model's calculations.[4] For example, land use areas are used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Therefore, by failing to include the proposed restaurant land use in the Towers air model, the construction and operational emissions are not properly accounted for in the model. Therefore, an updated air quality analysis should be prepared in an updated DEIR to adequately evaluate the Project's construction and operational air quality impacts.

Underestimated Land Use Size

Review of the Project's CalEEMod output files demonstrates that the size of the proposed General Office Building land use was underestimated within the operational model. According to the DEIR, the Project will include 307,288 square feet of office space once operational (p. II-30, table II-2). However, review of the CalEEMod output files reveals that an area value of 285,088 square feet was modeled for the General Office Building land use (see excerpt below) (Appendix C, pp. 258, 269).

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	285.09	1000sqft	0.95	285,088.00	0
User Defined Commercial	3.02	User Defined Unit	0.04	3,025.00	0
Enclosed Parking with Elevator	1,754.00	Space	0.68	697,600.00	0
Other Non-Asphalt Surfaces	74.64	1000sqft	0.08	74,643.00	0
City Park	0.92	Acre	0.08	28,777.00	0
Health Club	25.62	1000sqft	0.08	25,618.00	0
High Turnover (Sit Down Restaurant)	53.39	1000sqft	0.28	53,389.00	0
Quality Restaurant	22.20	1000sqft	0.20	22,200.00	0
Apartments High Rise	1,127.00	Dwelling Unit	0.80	1,071,692.00	1894
Supermarket	50.00	1000sqft	0.50	50,000.00	0

[4] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 18.

As you can see in the excerpt above, the operational CalEEMod model estimates emissions assuming a General Office Building land use size of 285,088 square feet. This underestimates the operational office space by 22,200 square feet. As previously stated, the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.[5] The square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Therefore, because the size of the General Office Building land use within the operational air model is underestimated, the operational emissions generated by the proposed Project are underestimated and should not be relied upon to determine Project significance.

Unsubstantiated Reduction in Land Use Population

Review of the Project's CalEEMod output files demonstrates that the population associated with the residential land use was manually reduced without proper justification. As a result, the Project's operational emissions may be underestimated.

According to the "User Entered Comments and Non-Default Data" table, the land use population was changed from 3,223 to 1,894 (see excerpt below) (Appendix B, pp. 138, pp. 184, pp. 260, pp. 271).

tblLandUse	Population	3,223.00	1,894.00

As you can see in the excerpt above, the population size is reduced by 1,329 residents, or approximately 41%. However, the DEIR fails to mention this reduction or justify any change to the land use population for high-rise apartments. According to the CalEEMod User's Guide, the land use population metric is used throughout CalEEMod to calculate emissions associated with Project activities.[6] As a result, the operational emissions associated with the Project may be underestimated and should not be relied upon to estimate emissions.

Incorrectly Applied Tier 4 Mitigation Measure

According to the DEIR, the Project will implement the use of Tier 4 engines for off-road construction equipment in order to reduce construction emissions (p. IV.B-77). The DEIR states,

> "As detailed in mitigation measures MM AQ-1 and MM AQ-2, construction of the Project would be required to utilize off-road diesel powered construction equipment that meet or exceed the stringent CARB and USEPA Tier 4 off-road emissions standards for those equipment rated at 50 hp or greater during Project construction" (p. IV.B-77).

MM-AQ-1 goes on to state,

[5] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 18.
[6] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 18.

> "Off-road diesel-powered equipment that will be used an aggregate of 40 or more hours during any portion of the construction activities associated with grading/excavation/export phase shall meet the Tier 4 standards" (IV. B-78).

As the above excerpt demonstrates, MM-AQ-1 does not specify whether the Project would implement Tier 4 Interim or Tier 4 Final engines. Review of the CalEEMod output files demonstrates that the model assumed that Tier 4 *Final* engines would be used for 150 pieces of construction equipment.

The excerpts below demonstrate that emissions were modeled assuming that 150 pieces of construction equipment were equipped with Tier 4 Final engines in the Tower, renovation, and vibratory pile driver air models (see excerpts below) (Appendix C, pp. 137, 183, 227, 233, 240, 249).

Tower Construction

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	42.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	14.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	16.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

Vibratory Pile Driver

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

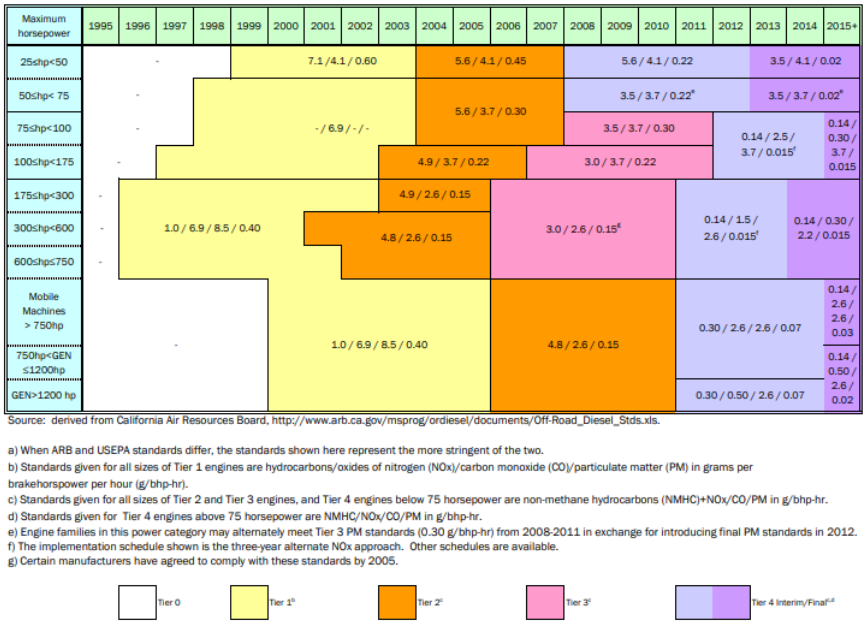
Renovation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

As can be seen in the excerpt above, the CalEEMod model assumes that 150 pieces of equipment used during Project construction would be mitigated with Tier 4 *Final* equipment. As discussed, this presents a significant issue, as the DEIR does not commit to the use of the more efficient Tier 4 Final equipment.

The United States Environmental Protection Agency (U.S. EPA) has slowly adopted more stringent standards to lower the emissions from off-road construction equipment since 1994. Since that time, Tier 1, Tier 2, Tier 3, Tier 4 Interim, and Tier 4 Final construction equipment has been phased in over time.

Tier 4 Final represents the cleanest burning equipment and therefore has the lowest emissions compared to other tiers, including Tier 4 Interim equipment (see excerpt below):[7]



Source: derived from California Air Resources Board, http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls.

a) When ARB and USEPA standards differ, the standards shown here represent the more stringent of the two.
b) Standards given for all sizes of Tier 1 engines are hydrocarbons/oxides of nitrogen (NOx)/carbon monoxide (CO)/particulate matter (PM) in grams per brakehorspower per hour (g/bhp-hr).
c) Standards given for all sizes of Tier 2 and Tier 3 engines, and Tier 4 engines below 75 horsepower are non-methane hydrocarbons (NMHC)+NOx/CO/PM in g/bhp-hr.
d) Standards given for Tier 4 engines above 75 horsepower are NMHC/NOx/CO/PM in g/bhp-hr.
e) Engine families in this power category may alternately meet Tier 3 PM standards (0.30 g/bhp-hr) from 2008-2011 in exchange for introducing final PM standards in 2012.
f) The implementation schedule shown is the three-year alternate NOx approach. Other schedules are available.
g) Certain manufacturers have agreed to comply with these standards by 2005.

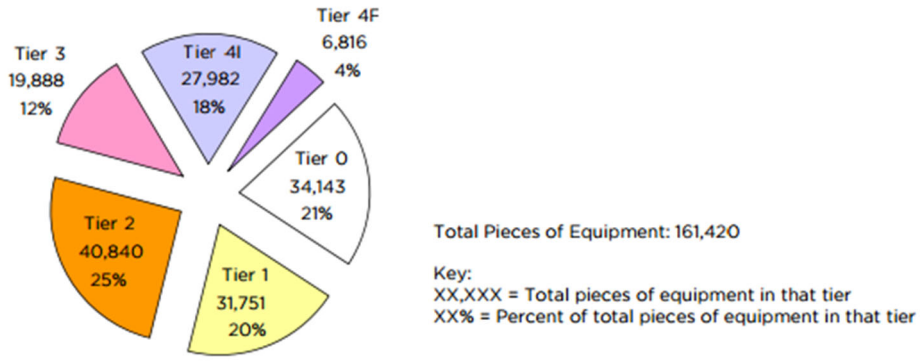
As demonstrated in the figure above, Tier 4 Interim and Tier 3 equipment have greater emission levels than Tier 4 Final equipment. Therefore, by modeling construction emissions assuming nearly a full Tier 4 Final equipment fleet, the Project Applicant failed to account for higher emissions that may occur as a result of the use of Tier 3 or Tier 4 Interim equipment. Since MM-AIR-1 fails to specify whether the Project will use Tier 4 Interim or Tier 4 Final equipment, it is incorrect to model emissions assuming that Tier 4 Final equipment will be used. Until the Project Applicant specifies that the Project will actually use Tier 4 Final engines during all phases of construction, and not utilize Tier 4 Interim equipment, the Project's potential impacts should not be evaluated assuming the use of this cleaner burning equipment.

Furthermore, review of the DEIR demonstrates that the DEIR failed to evaluate the feasibility in obtaining Tier 4 equipment. Due to the limited amount of Tier 4, especially Tier 4 Final, equipment available, the DEIR should have assessed the feasibility in obtaining equipment with Tier 4 Final (or interim) engines (see excerpt below).[8]

[7] "San Francisco Clean Construction Ordinance Implementation Guide for San Francisco Public Projects." August 2015, *available at:* https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf, p. 6

[8] *Ibid*.

Figure 4: 2014 Statewide All Fleet Sizes (Pieces of Equipment)



As demonstrated in the figure above, the Tier 4 Final equipment only accounts for 4% of all off-road equipment currently available in California. Thus, emissions are modeled assuming that the Project will be able to obtain 150 pieces of Tier 4 Final equipment even though this equipment only accounts for 4% of available off-road equipment currently available in California. As a result, the model represents the best-case scenario even though obtaining these types of equipment may not be feasible.

Unsubstantiated Application of Fuel Type Mitigation Measure

Review of the CalEEMod output files for the Towers demonstrates that the fuel types for several pieces of construction equipment were changed from diesel to electrical without proper justification. As a result, construction emissions are underestimated.

According to the Project's CalEEMod output files, the fuel type for 16 pieces of construction equipment were manually changed from diesel to electrical (see excerpt below) (Appendix C, pp. 136, 182)

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

As you can see in the excerpt above, the model assumes that 12 pieces of construction equipment would use electrical engines rather than the default diesel engines. As previously stated, the CalEEMod User's Guide requires that any non-default values inputted must be justified.[9] While the DEIR states that "[c]onstruction equipment such as tower cranes and signal boards shall utilize electricity from power poles or alternative fuels (i.e., non-diesel), rather than diesel power generators and/or gasoline power generators," it fails to demonstrate how many and which pieces of construction equipment will actually utilize electrical engines (p. IV. B-78). Furthermore, the DEIR fails to actually commit to the

[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 7, 13.

implementation and enforcement of this measure. As a result, the application of this mitigation measure cannot be verified, and the air model should not be relied upon to determine Project significance.

Incorrect Number of Worker Trips for Construction

The CalEEMod model relies on an incorrect number of worker trips to estimate the Project's construction emissions. As a result, the Project's construction-related air pollutant emissions and associated impacts may be underestimated and are inadequately addressed.

According to the Transportation and Traffic section of the DEIR, there would be 728 two-way, or 1,456 one-way, worker trips for building construction (see excerpt below) (p. IV.P-45, Table IV.P-7).

TABLE IV.P-7
CONSTRUCTION PERIOD TRIP GENERATION

Peak Day Activity Under Each Phase (two-way trips)	Phase 1: Demolition	Phase 2: Renovation	Phase 3: Site Preparation	Phase 4: Grading	Phase 5: Foundation/ Concrete Pour	Phase 6: Building Construction
Construction Workers	*29*	*62*	*29*	*30*	*19*	*728*
Passenger Car Equivalent (PCE) factor	1.0	1.0	1.0	1.0	1.0	1.0
Haul Truckloads	*10*	*0*	*0*	*140*	*0*	*0*
PCE factor	2.5	2.5	2.5	2.5	2.5	2.5
Delivery/Equipment Truckloads	*0*	*0*	*0*	*0*	*703*	*179*
PCE factor	2.0	2.0	2.0	2.0	2.0	2.0

As you can see in the excerpt above, the Project is anticipated to generate 728 two-way, or 1,456 one-way, trips during Project construction. Review of the CalEEMod output files, however, demonstrates that the Towers model includes an incorrect number of worker trips (see excerpt below) (Appendix C, pp. 150, 196).

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	20	58.00	0.00	3,500.00	14.70	6.90	22.10	LD_Mix	HDT_Mix	HHDT
Site Preparation	18	58.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	24	60.00	0.00	51,088.00	14.70	6.90	22.10	LD_Mix	HDT_Mix	HHDT
Foundation (North Tower)	15	38.00	1,406.00	0.00	14.70	25.00	20.00	LD_Mix	HHDT	HHDT
Foundation (South Tower)	15	38.00	1,173.00	0.00	14.70	25.00	20.00	LD_Mix	HHDT	HHDT
Subterranean Parking Structure	35	1,186.00	302.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Podium Construction	35	1,186.00	357.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	33	1,186.00	271.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	237.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	13	33.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

As you can see in the excerpt above, the total number of worker trips expected to occur during the Building Construction phase is underestimated by 270 trips. Without inputting the 1,456 trips discussed in the DEIR, the Towers air model fails to include all emissions expected for Project construction. As a result, construction emissions are underestimated. In order to provide the most conservative analysis, as is required by CEQA, the DEIR's Towers air model should have utilized the trip values indicated to model the Project's construction-related air pollutant emissions.

Unsubstantiated Changes to Indoor and Outdoor Water Use Rates

Review of the Project's CalEEMod output files demonstrates that the Project's indoor water use rates were artificially changed without proper justification. As result, operational emissions may be underestimated.

According to the Project's CalEEMod output files, numerous indoor water use rates were changed from their default values (see excerpt below) (Appendix C, pp. 262, 273).

Table Name	Column Name	Default Value	New Value
tblWater	IndoorWaterUseRate	73,428,586.88	41,370,819.10
tblWater	IndoorWaterUseRate	50,670,114.22	22,622,497.88
tblWater	IndoorWaterUseRate	1,515,247.35	4,209,271.08
tblWater	IndoorWaterUseRate	16,205,664.91	4,236,560.43
tblWater	IndoorWaterUseRate	6,738,448.42	1,761,629.58
tblWater	IndoorWaterUseRate	6,163,410.74	3,967,634.18
tblWater	IndoorWaterUseRate	0.00	511,321.06

As you can see in the excerpt above, the values for indoor water use rates were altered manually. According to the CalEEMod User's Guide, indoor and outdoor water use rates are used to determine land use contributions of GHG emissions associated with supplying and treating water and wastewater.[10] Regarding changes to water use rates, the DEIR states that "[t]he Project would reduce outdoor potable water use by a minimum of 20 percent compared to baseline water consumption" (p. II-48). However, this does not provide any justification for the changes to the Project's indoor water use rate. As a result, these changes cannot be verified, and the Project's operational emissions may be underestimated.

Failure to Implement All Feasible Mitigation to Reduce Emissions

The DEIR determines that the Project's construction NOx emissions would result in a significant air quality impact (see excerpt below) (p. IV.B-61, Table IV.B-7).

[10] http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 44

TABLE IV.B-11
ESTIMATED MAXIMUM MITIGATED REGIONAL CONSTRUCTION EMISSIONS (POUNDS PER DAY) [a]

Source	VOC	NO_x	CO [d]	SO_2	PM10 [b]	PM2.5 [b]
Individual Phases						
Demolition	2	15	91	<1	5	1
Site Preparation	2	8	75	<1	1	<1
Grading	5	99	89	<1	7	2
Foundation (North Tower)	16	502	125	1.4	33	11
Foundation (South Tower)	13	420	107	1.2	28	9
Subterranean Parking Structure Construction	10	52	148	<1	16	5
Podium Construction	9	54	137	<1	16	5
Building Construction	9	43	117	<1	16	5
Building Construction/Architectural Coating	23	40	122	<1	18	5
Building Construction/Paving/Architectural Coating	23	42	159	<1	19	5
Existing Building Renovations [c]	1	9	21	<1	2	1
Maximum Daily Emissions	**25**	**512**	**180**	**1.5**	**35**	**11**
SCAQMD Numeric Indicators	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	Yes	No	No	No	No

As you can see in the excerpt above, the DEIR determines that construction NOx emissions will exceed the SCAQMD threshold. The DEIR then concludes that the Project's construction NOx emissions will result in a significant air quality impact. As a result, the DEIR proposes a few mitigation measures to reduce the Project's criteria air pollutant emissions. However, even after implementation, the DEIR concludes that the Project's construction NOx emissions would be "significant and unavoidable" (p. IV.B-62). While we agree that the Project would result in a significant construction-related NOx impact, the DEIR's conclusion that these impacts are "significant and unavoidable" is incorrect. According to the California Environmental Quality Act (CEQA),

> "CEQA requires Lead Agencies to mitigate or avoid significant environmental impacts associated with discretionary projects. Environmental documents for projects that have any significant environmental impacts must identify all feasible mitigation measures or alternatives to reduce the impacts below a level of significance. If after the identification of all feasible mitigation measures, a project is still deemed to have significant environmental impacts, the Lead Agency can approve a project, but must adopt a Statement of Overriding Consideration to explain why

> further mitigation measures are not feasible and why approval of a project with significant unavoidable impacts is warranted." [11]

Thus, an impact can only be labeled as significant and unavoidable after all available, feasible mitigation is considered. Review of the Project's proposed mitigation measures, however, demonstrates that not all feasible mitigation measures are being implemented (p. IV.B-77 – IV.B-79). While the DEIR does include two mitigation measures for construction, MM-AQ-1 and MM-AQ-2, it fails to incorporate all feasible mitigation, as is required by CEQA. Therefore, the DEIR's conclusion that impacts are significant and unavoidable is unsubstantiated. As a result, additional mitigation measures should be identified and incorporated in order to reduce the Project's air quality impacts to the maximum extent possible. Until all feasible mitigation is reviewed and incorporated into the Project's design, impacts from construction NOx emissions cannot be considered significant and unavoidable.[12]

As a result of the air modeling issues discussed above, we find the Project's air quality impacts to be inadequately evaluated and require that an updated DEIR with an updated CalEEMod model be prepared that properly evaluates and mitigates the Project's air quality impacts to a less than significant level.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR determines that the proposed Project would result in a less than significant health risk impact without conducting a quantitative construction or operational health risk assessment (HRA) to nearby sensitive receptors (p. IV.B-37). The DEIR attempts to justify the omission of a construction HRA by stating,

> "Given the temporary and short-term construction schedule (approximately 48 months), the Project would not result in a long-term (i.e., lifetime or 70-year) exposure as a result of Project construction" (p. IV.B-69).

Furthermore, the DEIR attempts to justify the omission of an operational HRA by stating,

> "Based on the uses expected on the Project Site, potential long-term operational impacts associated with the release of TACs would be minimal, regulated, and controlled, and would not be expected to exceed the SCAQMD numerical indicator of significance. Therefore, impacts would be less than significant" (p. IV.B-71).

However, these justifications for failing to evaluate the health risk posed to nearby sensitive receptors are incorrect for several reasons.

First, simply stating that the Project has a "short-term construction schedule" does not justify the omission of a construction HRA. According to the SCAQMD, the air pollution control agency for the

[11] "Guidance for Assessing and Mitigating Air Quality Impacts." SJVAPCD, March 2015, *available at:* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, p. 115 of 125.
[12] See section titled "Mitigation Measures Available to Reduce Construction Emissions" of this comment letter. These measures would effectively reduce construction-related NOx emissions.

proposed Project, it is recommended that health risk impacts from short-term projects also be assessed. The Guidance document states,

> Since these short-term calculations are only meant for projects with limits on the operating duration, these short-term cancer risk assessments can be thought of as being the equivalent to a 30-year cancer risk estimate and the appropriate thresholds would still apply (i.e. for a 5-year project, the maximum emissions during the 5-year period would be assessed on the more sensitive population, from the third trimester to age 5, after which the project's emissions would drop to 0 for the remaining 25 years to get the 30-year equivalent cancer risk estimate).[13]

Thus, an HRA is required to determine whether the Project would expose sensitive receptors to substantial air pollutants. The DEIR should have conducted some sort of quantitative analysis and should have compared the results of this analysis to applicable thresholds. The SCAQMD provides a specific numerical threshold of 10 in one million for determining a project's health risk impact.[14] Therefore, the DEIR should have conducted an assessment that compares the Project's construction and operational health risks to this threshold in order to determine the Project's health risk impacts. By failing to prepare an HRA, the DEIR fails to provide a comprehensive analysis of the sensitive receptor impacts that may occur as a result of exposure to substantial air pollutants.

Furthermore, just because "potential long-term operational impacts associated with the release of TACs would be minimal, regulated, and controlled," and because the DEIR asserts that impacts would not "exceed the SCAQMD numerical indicator of significance," does not mean that the Project's operational health-related impacts will inherently be less than significant. Although we were not given an operating schedule, we can reasonably assume that once Project construction is complete, it will operate for a long period of time. During operation, the Project will generate vehicle trips and truck deliveries, which will generate additional exhaust emissions, thus continuing to expose nearby sensitive receptors to emissions. As such, the DEIR should have conducted a construction and operational HRA, as long-term exposure to DPM and other TACs may result in a significant health risk impact and therefore, should be properly assessed.

Third, the omission of a quantified HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment (OEHHA), the organization responsible for providing recommendations and guidance on how to conduct HRAs in California. In February of 2015, the OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, which was formally adopted in March of 2015.[15] This guidance document describes the

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[13] "Risk Assessment Procedures for Rules 1401, 1401.1 and 212." SCAQMD, June 2015, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk-assessment/riskassprocjune15.pdf?sfvrsn=2, p. XII-1 – XII-2.

[14] "South Coast AQMD Air Quality Significance Thresholds." SCAQMD, April 2019, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

[15] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

types of projects that warrant the preparation of an HRA. As previously stated, grading and construction activities for the proposed Project will produce emissions of DPM through the exhaust stacks of construction equipment over an approximate 48-month construction period (p. IV.B-37). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[16] Once construction is complete, Project operation will generate vehicle and truck trips, which will generate additional exhaust emissions, thus continuing to expose nearby sensitive receptors to DPM emissions. The OEHHA document recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR). [17] Even though we were not provided with the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, per OEHHA guidelines, health risk impacts from Project construction and operation should have been evaluated in an HRA. These recommendations reflect the most recent HRA policy, and as such, an assessment of health risks to nearby sensitive receptors from construction and operation should be included in an updated DEIR.

Screening-Level Assessment Indicates Significant Impact

In an effort to demonstrate the potential risk posed by Project construction and operation to nearby sensitive receptors, we prepared a simple screening-level HRA. The results of our assessment, as described below, provide substantial evidence that the Project's construction and operational DPM emissions may result in a potentially significant health risk impact not previously identified by the DEIR.

In order to conduct our screening level risk assessment, we relied upon AERSCREEN, which is a screening level air quality dispersion model. [18] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[19] and the California Air Pollution Control Officers Associated (CAPCOA)[20] guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

We prepared a preliminary HRA of the Project's construction and operational health-related impact to residential sensitive receptors using the annual PM_{10} exhaust estimates from the SWAPE annual

[16] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 8-18.
[17] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 8-6, 8-15.
[18] "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at:* http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf
[19] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf
[20] "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at:* http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

CalEEMod output files. According to the DEIR, the nearest residential sensitive receptor is located 250 feet, or approximately 75 meters, southeast of the Project site (p. IV.B-27). Consistent with recommendations set forth by OEHHA, we assumed that residential exposure begins during the third trimester stage of life. The Project's construction CalEEMod output files indicate that construction activities will generate approximately 228 pounds of diesel particulate matter (DPM) over the 1,559-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{227.8\ lbs}{1{,}559\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.0007673\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.000767 grams per second (g/s). Subtracting the 1,559-day construction duration from the total residential duration of 30 years, we assumed that after Project construction, the MEIR would be exposed to the Project's operational DP< for an additional 25.73 years, approximately. The Project's operational CalEEMod emissions indicate that operational activities will generate approximately 407 pounds of DPM per year throughout operation. Applying the same equation used to estimate the construction DPM rate, we estimated the following emission rate for Project operation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{407\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.00585\ g/s}$$

Using this equation, we estimated an operational emission rate of 0.00585 g/s. Construction and operational activity was simulated as a 3.6-acre rectangular area source in AERSCREEN with dimensions of 143 meters by 102 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.[21] AS previously stated, there are residential sensitive receptors located approximately 75 meters from the Project site. The single-hour concentration estimated by AERSCREEN for Project construction is approximately 1.396 µg/m^3 DPM at approximately 75 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration 0.1396 µg/m^3 for Project

[21] "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised." EPA, 1992, *available at*: http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf; *see also* "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 4-36

construction at the nearest sensitive receptor. For Project operation, the single-hour concentration is estimated by AERSCREEN is approximately 10.65 µg/m^3 at approximately 75 meters downwind. Multiplying this single- hour concentration by 10%, we get an annualized average concentration of 1.065 µg/m^3 for Project operation at the nearest sensitive receptor.

We calculated the excess cancer risk to the residential receptors both maximally exposed and located closest to the Project site using applicable HRA methodologies prescribed by OEHHA and the SCAQMD. Consistent with the construction schedule proposed by the DEIR, the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years) and the first 0.75 years of the infantile stage of life (0 – 2 years). The annualized average concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the infantile stage of life (0 – 2 years), child stages of life (2 – 16 years) and adult stages of life (16 – 30 years). Consistent with OEHHA, SCAQMD, BAAQMD, and SJVAPCD guidance, we used Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.[22, 23, 24, 25] According to the most updated guidance, quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) and should be multiplied by a factor of three during the child stage of life (2 to 16 years). We also included the quantified cancer risk without adjusting for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution in accordance with older OEHHA guidance from 2003. This guidance utilizes a less health protective scenario than what is currently recommended by SCAQMD, the air quality district responsible for the City, and several other air districts in the state. Furthermore, in accordance with guidance set forth by OEHHA, we used the 95th percentile breathing rates for infants.[26] Finally, according to SCAQMD guidance, we used a Fraction of Time At Home (FAH) Value of 1 for the

[22] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.
[23] "Draft Environmental Impact Report (DEIR) for the Proposed The Exchange (SCH No. 2018071058)." SCAQMD, March 2019, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2019/march/RVC190115-03.pdf?sfvrsn=8, p. 4.
[24] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. 56; see also "Recommended Methods for Screening and Modeling Local Risks and Hazards." BAAQMD, May 2011, *available at:* http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx, p. 65, 86.
[25] "Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document." SJVAPCD, May 2015, *available at:* https://www.valleyair.org/busind/pto/staff-report-5-28-15.pdf, p. 8, 20, 24.
[26] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6, p. 19.
"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

3rd trimester and infant receptors.[27] We used a cancer potency factor of 1.1 (mg/kg-day)$^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.1396	361	1.9E-07	10	1.9E-06
3rd Trimester Duration	***0.25***			***1.9E-07***	***3rd Trimester Exposure***	***1.9E-06***
Construction	2.00	0.1396	1090	4.6E-06	10	4.6E-05
Infant Exposure Duration	***2.00***			***4.6E-06***	***Infant Exposure***	***4.6E-05***
Construction	2.02	0.1396				
Operation	11.98	1.065	572	1.1E-04	3	3.3E-04
Child Exposure Duration	***14.00***			***1.1E-04***	***Child Exposure***	***3.3E-04***
Operation	14.00	1.065	261	4.3E-05	1	4.3E-05
Adult Exposure Duration	***14.00***			***4.3E-05***	***Adult Exposure***	***4.3E-05***
Lifetime Exposure Duration	**30.00**			**1.6E-04**	**Lifetime Exposure**	**4.2E-04**

* We, along with CARB and SCAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

The excess cancer risk posed to adults, children, infants, and during the third trimester of pregnancy at the closest receptor, located approximately 75 meters away, over the course of Project construction and operation, utilizing age sensitivity factors, are approximately 43, 330, 46, and 1.9 in one million, respectively. The excess cancer risk over the course of a residential lifetime (30 years) at the closest receptor, with age sensitivity factors, is approximately 420 in one million. The excess cancer risk posed to adults, children, infants, and during the third trimester of pregnancy at the closest receptor, located approximately 75 meters away, over the course of Project construction and operation, without utilizing age sensitivity factors, are approximately 43, 110, 4.6, 0.19 in one million. The excess cancer risk over the course of a residential lifetime (30 years) at the closest receptor, without utilizing age sensitivity factors, is approximately 160 in one million.

An agency must include an analysis of health risks that connects the Project's air emissions with the health risk posed by those emissions. Our analysis represents a screening-level HRA, which is known to

[27] "Risk Assessment Procedures for Rules 1401, 1401.1, and 212." SCAQMD, August 2017, *available at:* http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/riskassessmentprocedures_2017_080717.pdf, p. 7.

be conservative and tends to err on the side of health protection.[28] The purpose of the screening-level construction HRA shown above is to demonstrate the link between the proposed Project's emissions and the potential health risk. Our screening-level HRA demonstrates that construction of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. Therefore, since our screening-level construction HRA indicates a potentially significant impact, an updated CEQA analysis should include a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors. Thus, an updated DEIR should include a quantified air pollution model as well as an updated, quantified refined health risk assessment which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.

Mitigation Measures Available to Reduce Construction Emissions

The Northeast Diesel Collaborative (NEDC) is a regionally coordinated initiative to reduce diesel emissions, improve public health, and promote clean diesel technology. The NEDC recommends that contracts for all construction projects require the following diesel control measures: [29]

- All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85 percent.
- As previously mentioned, MM-AQ-1 requires that "[o]ff-road diesel-powered equipment that will be used an aggregate of 40 or more hours during any portion of the construction activities associated with grading/excavation/export phase shall meet the Tier 4 standards" (p. IV.B-78). We recommend that all diesel nonroad construction equipment have engines that meet EPA Tier 4 *Final* nonroad emission standards.
- All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend[30] approved by the original engine manufacturer with sulfur content of 15 parts per million (ppm) or less.

Repower or Replace Older Construction Equipment Engines

The NEDC recognizes that availability of equipment that meets the EPA's newer standards is limited.[31] Due to this limitation, the NEDC proposes actions that can be taken to reduce emissions from existing equipment in the *Best Practices for Clean Diesel Construction* report.[32] These actions include but are not limited to:

- Repowering equipment (i.e. replacing older engines with newer, cleaner engines and leaving the body of the equipment intact).

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[28] *Supra*, fn 20, p. 1-5.
[29] Diesel Emission Controls in Construction Projects, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf
[30] Biodiesel lends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements: http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf
[31]http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf
[32]http://northeastdiesel.org/pdf/BestPractices4CleanDieselConstructionAug2012.pdf

Engine repower may be a cost-effective emissions reduction strategy when a vehicle or machine has a long useful life and the cost of the engine does not approach the cost of the entire vehicle or machine. Examples of good potential replacement candidates include marine vessels, locomotives, and large construction machines.[33] Older diesel vehicles or machines can be repowered with newer diesel engines or in some cases with engines that operate on alternative fuels (see section "Use Alternative Fuels for Construction Equipment" for details). The original engine is taken out of service and a new engine with reduced emission characteristics is installed. Significant emission reductions can be achieved, depending on the newer engine and the vehicle or machine's ability to accept a more modern engine and emission control system. It should be noted, however, that newer engines or higher tier engines are not necessarily cleaner engines, so it is important that the Project Applicant check the actual emission standard level of the current (existing) and new engines to ensure the repower product is reducing emissions for DPM.[34]

- Replacement of older equipment with equipment meeting the latest emission standards.

Engine replacement can include substituting a cleaner highway engine for a nonroad engine. Diesel equipment may also be replaced with other technologies or fuels. Examples include hybrid switcher locomotives, electric cranes, LNG, CNG, LPG or propane yard tractors, forklifts or loaders. Replacements using natural gas may require changes to fueling infrastructure.[35] Replacements often require some re-engineering work due to differences in size and configuration. Typically, there are benefits in fuel efficiency, reliability, warranty, and maintenance costs.[36]

Install Retrofit Devices on Existing Construction Equipment

PM emissions from alternatively-fueled construction equipment can be further reduced by installing retrofit devices on existing and/or new equipment. The most common retrofit technologies are retrofit devices for engine exhaust after-treatment. These devices are installed in the exhaust system to reduce emissions and should not impact engine or vehicle operation. [37] It should be noted that actual emissions reductions and costs will depend on specific manufacturers, technologies and applications. Should the Applicant be unable to obtain Tier 4 Interim or Tier 4 Final off-road equipment engines for all pieces of equipment with 50 hp or greater, the Applicant should consider use of engines that meet Tier 3 off-road emission standards and engines that are retrofitted with an ARB Level 2 or Level 3 Verified Diesel Emissions Control Strategy (VDECS).

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[33] Repair, Rebuild, and Repower, EPA, *available at:*https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#repair

[34] Diesel Emissions Reduction Program (DERA): Technologies, Fleets and Projects Information, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/420p11001.pdf

[35] Alternative Fuel Conversion, EPA, *available at:* https://www3.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm#fact

[36] Cleaner Fuels, EPA, *available at:*https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#cleaner

[37] Retrofit Technologies, EPA, *available at:*https://www.epa.gov/verified-diesel-tech/learn-about-verified-technologies-clean-diesel#retrofit

Use Electric and Hybrid Construction Equipment

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[38] report also proposes the use of electric and/or hybrid construction equipment as a way to mitigate DPM emissions. When construction equipment is powered by grid electricity rather than fossil fuel, direct emissions from fuel combustion are replaced with indirect emissions associated with the electricity used to power the equipment. Furthermore, when construction equipment is powered by hybrid-electric drives, emissions from fuel combustion are also greatly reduced. Electric construction equipment is available commercially from companies such as Peterson Pacific Corporation,[39] which specialize in the mechanical processing equipment like grinders and shredders. Construction equipment powered by hybrid-electric drives is also commercially available from companies such as Caterpillar[40]. For example, Caterpillar reports that during an 8-hour shift, its D7E hybrid dozer burns 19.5 percent fewer gallons of fuel than a conventional dozer while achieving a 10.3 percent increase in productivity. The D7E model burns 6.2 gallons per hour compared to a conventional dozer which burns 7.7 gallons per hour.[41] Fuel usage and savings are dependent on the make and model of the construction equipment used. The Project Applicant should calculate project-specific savings and provide manufacturer specifications indicating fuel burned per hour.

Implement a Construction Vehicle Inventory Tracking System

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[42] report recommends that the Project Applicant provide a detailed plan that discusses a construction vehicle inventory tracking system to ensure compliances with construction mitigation measures. The system should include strategies such as requiring engine run time meters on equipment, documenting the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment and daily logging of the operating hours of the equipment. Specifically, for each onroad construction vehicle, nonroad construction equipment, or generator, the contractor should submit to the developer's representative a report prior to bringing said equipment on site that includes:[43]

- Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number.
- The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level.
- The Certification Statement[44] signed and printed on the contractor's letterhead.

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[38] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

[39] Peterson Electric Grinders Brochure, *available at:* http://www.petersoncorp.com/wp-content/uploads/peterson_electric_grinders1.pdf

[40] Electric Power Products, *available at:* http://www.cat.com/en_US/products/new/power-systems/electric-power-generation.html

[41] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

[42] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

[43] Diesel Emission Controls in Construction Projects, *available at:* http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf

[44] Diesel Emission Controls in Construction Projects, *available at:* http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf The NEDC Model Certification Statement can be found in Appendix A.

Furthermore, the contractor should submit to the developer's representative a monthly report that, for each on-road construction vehicle, nonroad construction equipment, or generator onsite, includes: [45]

- Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date.
- Any problems with the equipment or emission controls.
- Certified copies of fuel deliveries for the time period that identify:
    - Source of supply
    - Quantity of fuel
    - Quality of fuel, including sulfur content (percent by weight).

In addition to these measures, we also recommend that the Applicant implement the following mitigation measures, called "Enhanced Exhaust Control Practices,"[46] that are recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD):

1. The project representative shall submit to the lead agency a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.
    - The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment.
    - The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
    - This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment.
    - The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
2. The project representative shall provide a plan for approval by the lead agency demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average.
    - This plan shall be submitted in conjunction with the equipment inventory.
    - Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
    - The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

[45] Diesel Emission Controls in Construction Projects, *available at:*http://www2.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf
[46]http://www.airquality.org/ceqa/Ch3EnhancedExhaustControl_10-2013.pdf

3. The project representative shall ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour.
    - Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. Non-compliant equipment will be documented and a summary provided to the lead agency monthly.
    - A visual survey of all in-operation equipment shall be made at least weekly.
    - A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.
4. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supersede other District, state or federal rules or regulations.

These measures offer a cost-effective, feasible way to incorporate lower-emitting equipment into the Project's construction fleet, which subsequently reduces NOx and DPM emissions released during Project construction. An updated DEIR must be prepared to include additional mitigation measures, as well as include an updated air quality assessment to ensure that the necessary mitigation measures are implemented to reduce construction emissions. Furthermore, the Project Applicant needs to demonstrate commitment to the implementation of these measures prior to Project approval to ensure that the Project's construction-related emissions are reduced to the maximum extent possible.

Use of Materials that Do Not Require Paint

Using materials that do not require painting is a common mitigation measure where VOC emissions are a concern. Interior and exterior surfaces, such as concrete, can be left unpainted.

Use of Spray Equipment with Greater Transfer Efficiencies

Various coatings and adhesives are required to be applied by specified methods such as electrostatic spray, high-volume, low-pressure (HVLP) spray, roll coater, flow coater, dip coater, etc. in order to maximize the transfer efficiency. Transfer efficiency is typically defined as the ratio of the weight of coating solids adhering to an object to the total weight of coating solids used in the application process, expressed as a percentage. When it comes to spray applications, the rules typically require the use of either electrostatic spray equipment or HVLP spray equipment. The SCAQMD is now able to certify HVLP spray applicators and other application technologies at efficiency rates of 65 percent or greater.[47]

These measures offer a cost-effective, feasible way to incorporate lower-emitting equipment into the Project's construction fleet, which subsequently reduces DPM emissions released during Project construction. Furthermore, these measures also offer a feasible way to reduce the construction-related ROG emissions released from paints and architectural coatings. A revised DEIR must be prepared to

[47] http://www.aqmd.gov/home/permits/spray-equipment-transfer-efficiency

include additional mitigation measures, as well as include an updated air quality assessment to ensure that the necessary mitigation measures are implemented to reduce construction emissions. Furthermore, the Project Applicant needs to demonstrate commitment to the implementation of these measures prior to Project approval to ensure that the Project's construction-related emissions are reduced to the maximum extent possible.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The DEIR determines that the Project's GHG impact would be less than significant as a result of consistency with CARB's 2017 Climate Change Scoping Plan, SCAG's 2016 RTP/SCS, the LA Green Plan, and the Sustainable City pLAn (p. IV.E-38). The DEIR also quantifies emissions, but fails to compare them to the SCAQMD's bright-line threshold, claiming that the SCAQMD has not adopted a GHG significance threshold for land use development projects (p. IV.E-18). Specifically, the DEIR states,

> "In the absence of any adopted numeric threshold, the significance of the Project's GHG emissions is evaluated consistent with *CEQA Guidelines* Section 15064.4(b) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. The 2016-2040 RTP/SCS is designed to achieve regional GHG reductions from the land use and transportation sectors as required by SB 375 and the state's long-term climate goals. CARB's Climate Change Scoping Plan, SCAG's 2016 RTP/SCS, the City's *LA Green Plan,* and *Sustainable City pLAn* all apply to the Project and are all intended to reduce GHG emissions to meet the statewide targets set forth in AB 32. Thus, the Lead Agency has determined that the Project would not have a significant effect on the environment if the Project is found to be consistent with the applicable regulatory plans and policies to reduce GHG emissions, including the emissions reduction measures discussed within CARB's 2017 Climate Change Scoping Plan, SCAG's 2016 RTP/SCS, and the City's *LA Green Plan,* and *Sustainable City pLAn*" (emphasis added) (p. IV.E-38).

This justification and subsequent less-than-significant impact finding is incorrect and unsubstantiated for several reasons:

(1) The California Air Resources Board ("CARB") 2017 Scoping Plan and the Southern California Association of Governments ("SCAG") Regional Transportation Plan/Sustainable Community Strategies ("RTP/SCS") cannot be relied upon to determine Project significance;
(2) The City's *LA Green Plan* and *Sustainable City pLAn* do not meet the criteria for an officially adopted GHG reduction plan;
(3) The DEIR conducts an incorrect and unsubstantiated analysis of the Project's GHG emissions;
(4) Notwithstanding the flawed air model discussed above, the Project's estimated GHG emissions exceed applicable bright-line and efficiency thresholds, thus resulting in a significant impact that was not previously identified or addressed by the DEIR;
(5) The DEIR's failure to apply the SCAQMD's bright-line and efficiency thresholds to Project emissions is inconsistent with evolving scientific knowledge and regulatory schemes.

1) Failure to Demonstrate Additionality

The DEIR's reliance on the CARB 2017 Scoping Plan and SCAG's RTP/SCS is inadequate, as projects must incorporate emissions reductions measures beyond those that comprise basic requirements. Just because "a project is designed to meet high building efficiency and conservation standards … does not establish that its [GHG] emissions from transportation activities lack significant impacts." *Newhall Ranch*, 62 Cal.4th at 229 (citing Natural Resources Agency).[48] This concept is known as "additionality" whereby GHG emission reductions otherwise required by law or regulation are appropriately considered part of the baseline and, pursuant to CEQA Guideline § 15064.4(b)(1), a new project's emissions should be compared against that existing baseline.[49] Hence, a "project should not subsidize or take credit for emissions reductions which would have occurred regardless of the project."[50] In short, as observed by the Court, newer developments must be more GHG-efficient. *See Newhall Ranch,* 62 Cal.4th at 226.

Furthermore, CARB asserts that SCAG's RTP/SCS is not enough, and recently found that California "***is not on track***" to meet GHG reductions expected under SB 375 (i.e., Sustainable Communities Strategy).[51] As warned by CARB (emphasis added), "with emissions from the transportation sector continuing to rise despite increases in fuel efficiency and decreases in the carbon content of fuel, ***California will not achieve the necessary [GHG] emissions reductions to meet mandates for 2030*** and beyond …."[52] This is further supported by two recent climate change reports where scientists described (emphasis added) the ***quickening rate of carbon dioxide emissions as a "speeding freight train***" with an unexpected surge in people buying more cars and driving them farther than in the past — "***more than offsetting any gains from the spread of electric vehicles***."[53] Therefore, the Project may require more GHG-reducing measures to offset the lost GHG reductions anticipated under the outdated, unmonitored GGRP, such as the net-zero approach utilized in the wake of the Supreme Court's *Newhall Ranch* decision. *See Newhall Ranch,* 62 Cal.4th at 226 ("a greater degree of reduction may be needed from new land use projects …."); *see also Californians for Alternatives to Toxics v. Department of Food and Agriculture* (2005) 136 Ca1.App.4th 1, 17 ("[c]ompliance with the law is not enough to support a finding of no significant impact

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[48] *See* California Natural Resources Agency (Dec. 2009) Final Statement of Reasons for Regulatory Action: Amendments to State CEQA Guidelines Addressing Analysis and Mitigation of GHG Emissions Pursuant to SB-97, p. 23 (while a Platinum LEED® rating may be relevant to emissions from a building's energy use, "that performance standard may not reveal sufficient information to evaluate transportation-related emissions associated with that proposed project"), http://resources.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf.

[49] *Ibid*., p. 89; *see also* CAPCOA (Aug. 2010) Quantifying Greenhouse Gas Mitigation Measures, p. 32, A3 ("… in practice is that if there is a rule that requires, for example, increased energy efficiency in a new building, the project proponent cannot count that increased efficiency as a mitigation or credit unless the project goes beyond what the rule requires; and in that case, only the efficiency that is in excess of what is required can be counted."), http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

[50] *Ibid*., CAPCOA, p. 433.

[51] CARB (Nov. 2018) 2018 Progress Report, p. 4-7 (emphasis added), https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.

[52] *Ibid*.

[53] New York Times (12/5/18) Greenhouse Gas Emissions Accelerate Like a 'Speeding Freight Train' in 2018 (emphasis added), https://www.nytimes.com/2018/12/05/climate/greenhouse-gas-emissions-2018.html; *see also* Global Carbon Project (Dec. 2018) Global Carbon Budget 2018, https://www.earth-syst-sci-data.net/10/2141/2018/essd-10-2141-2018.pdf; R.B. Jackson, et al. (Dec. 2015) Global Energy Growth Is Outpacing Decarbonization, http://iopscience.iop.org/article/10.1088/1748-9326/aaf303/pdf.

under the CEQA."). Additional reduction efforts may be required for the Project, including those new, feasible mitigation measures found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures,* which attempt to reduce GHG levels.

2) The City's LA Green Plan and Sustainable City pLAn are not CAPs

The DEIR determines that the Project's GHG impact would be less than significant as a result of consistency with the City's LA Green Plan and Sustainable City pLAn (p. IV.E-38). However, these regulatory plans do not meet the criteria for an officially adopted GHG reduction program, commonly referred to as a Climate Action Plan ("CAP"), for use as a threshold of significance for GHG emissions. As the CEQA Guidelines §§ 15064.4(b)(3) and 15183.5(b)(1) make clear, a qualified CAP "must be adopted by the relevant public agency through a public review process," and the CAP should include:

(1) **Inventory**: Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);
(2) **Establish GHG Reduction Goal**: Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
(3) **Analyze Project Types**: Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
(4) **Craft Performance Based Mitigation Measures**: Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
(5) **Monitoring**: Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels;

Here, the DEIR fails to demonstrate that the LA Green Plan and Sustainable City pLAn include the above-listed requirements to be considered a qualified CAP for the City. As such, the DEIR leaves an analytical gap showing that compliance with said plans can be used for project-level significance determination. Thus, compliance with these regulatory plans and policies should not be used as a threshold with which to determine the significance of the proposed Project's GHG impact.

3) Incorrect and Unsubstantiated Analysis of Greenhouse Gas Emissions

In addition to the Project's incorrect reliance upon consistency with plans and regulations to determine Project significance, the DEIR fails to adequately compare the Project's annual GHG emissions to the applicable SCAQMD threshold.

Review of the DEIR demonstrates that the Project would produce 14,922 metric tons of CO_2 equivalents per year (MT CO_2e/year) (see excerpt below) (IV.E-85, Table IV.E-9).

TABLE IV.E-9
ANNUAL GREENHOUSE GAS EMISSIONS

Emissions Sources	Project CO_2e (Metric Tons per Year) [a,b]	
	Project Without GHG Reduction Characteristics, Features, and Measures	Proposed Project
Existing Site (refer to Table IV.E-2)	7,125	7,125
Proposed Project Operational		
On-Road Mobile Sources[c]	17,397	11,800
Stationary (Emergency Generators)	27	27
Area	20	20
Electricity	9,448	6,862
Natural Gas	1,869	1,846
Water Conveyance and Wastewater Treatment	663	505
Solid Waste	242	242
Construction (Amortized)	745	745
Proposed Subtotal	30,411	22,047
Percent Reduction (Project Only)	—	28%
Net Operational (Proposed – Existing)	23,286	14,922
Percent Reduction (Net Operational Total)	—	36%

[a] Totals may not add up exactly due to rounding in the modeling calculations.
[b] Detailed GHG emissions assumptions and calculations are provided in Appendix F-2 and Appendix F-3 of the GHG Technical Report
[c] On-road Mobile Sources: 17,397 - 11,800 = 5,597/17,397 = 32.2% reduction.

SOURCE: ESA, 2018.

As you can see in the excerpt above, the DEIR concludes that the Project will produce 14,922 MT CO_2e/year from construction and operation. However, the DEIR fails to compare these emissions to relevant thresholds, claiming that the SCAQMD has not adopted a GHG significance threshold for land use development projects (p. IV.E-18). While the DEIR is correct in stating that the SCAQMD *Interim Thresholds* were never adopted, this does not mean, however, that they are inapplicable to the proposed Project or otherwise can be ignored. As explained below, consistent with CEQA Guidelines, the SCAQMD's interim thresholds should have been used by the DEIR. It is commonly recognized by

California air districts that a project's impact on climate change is cumulative in nature.[54] According to the Technical Advisory prepared by the Office of Planning and Research ("OPR"), "[t]he potential effects of a project may be individually limited but cumulatively considerable[]" and that "[l]ead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful consideration, supported by substantial evidence … [including] analysis should be provided for any project that may significantly contribute to new GHG emissions, either individually or cumulatively, directly or indirectly."[55] Furthermore, OPR rightfully acknowledge, consistent with state regulatory scheme and CEQA case law, that "thresholds cannot be used to determine automatically whether a given effect will or will not be significant; instead, thresholds of significance can be used only as a measure of whether a certain environmental effect will normally be determined to be significant or normally will be determined to be less than significant by the agency."[56] Recognizing this principle, CEQA Guidelines 15064.7(c) permit the use of thresholds developed by other public agencies.

Similarly, the California Supreme Court has made clear that CEQA demands robust GHG analysis to assess a project's impact on climate change, and while lead agencies have discretion, that discretion must be exercised "based to the extent possible on scientific and factual data" and "stay[ing] in step with evolving scientific knowledge and state regulatory schemes." *Cleveland National Forest Foundation*

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[54] *See e.g.,* SCAQMD (Oct. 2008), *supra* fn. 28, p. 1-4-5 (citing the OPR Technical Advisor: "When assessing whether a project's effects on climate change are 'cumulatively considerable' even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects."), http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf; Bay Area Air Quality Management District ("BAAQMD") (May 2017) CEQA Air Quality Guidelines, p. 2-1 ("No single project could generate enough GHG emissions to noticeably change the global average temperature [but rather] [t]he combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts."), http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en; San Luis Obispo County Air Pollution Control District ("SLOAPCD") (Mar. 28, 2012) GHG Threshold and Supporting Evidence, p. 5 ("No single land use project could generate enough GHG emissions to noticeably change the global average temperature. Cumulative GHG emissions, however, contribute to global climate change and its significant adverse environmental impacts. Thus, the primary goal in adopting GHG significance thresholds, analytical methodologies, and mitigation measures is to ensure new land use development provides its fair share of the GHG reductions needed to address cumulative environmental impacts from those emissions.), https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/Greenhouse%20Gas%20Thresholds%20and%20Supporting%20Evidence%204-2-2012.pdf; Sacramento Metropolitan Air Quality Management District ("SMAQMD") (May 2018) Guide to Air Quality Assessment in Sacramento County, p. 6-1-3, ("(GHG) emissions adversely affect the environment through contributing, on a cumulative basis, to global climate change … *the District recommends that lead agencies address the impacts of climate change on a proposed project and its ability to adapt to these changes in CEQA documents*… [thus urging] evaluating whether the GHG emissions associated with a proposed project will be responsible for making a cumulatively considerable contribution to global climate change."[emphasis original]), http://www.airquality.org/LandUseTransportation/Documents/Ch6GHGFinal5-2018.pdf.

[55] OPR (June 19, 2008) Technical Advisory on CEQA and Climate Change, p. 6, http://opr.ca.gov/docs/june08-ceqa.pdf.

[56] OPR (Nov. 2017) Proposed Updates to the CEQA Guidelines, p. 7 (citing CEQA Guidelines §§ 15064 and 15064.7 and *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-1109), http://opr.ca.gov/docs/20171127_Comprehensive_CEQA_Guidelines_Package_Nov_2017.pdf.

v. San Diego Assn. of Governments ("*Cleveland II*") (2017) 3 Cal.5th 497, 504, 515, 518 (quoting CEQA Guidelines § 15064(b)); *see also* 519 (noting to meet the State's long-term climate goals, "regulatory clarification, together with improved methods of analysis, may well change the manner in which CEQA analysis of long-term [GHG] emission impacts is conducted."). Hence, a GHG analysis which "understates the severity of a project's impacts impedes meaningful public discussion and skews the decision maker's perspective concerning the environmental consequences of the project, the necessity for mitigation measures, and the appropriateness of project approval." *Id*., on remand ("*Cleveland III*"), 17 Cal.App.5th 413, 444; *see also Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564 (quoting *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392).

SCAQMD's multi-tiered approach under its *Interim Threshold* was not officially adopted as a valid threshold or part of a plan "adopted by the relevant public agency through a public review process" as CEQA requires.[57] Moreover, SCAQMD developed its thresholds when AB 32 was the governing statute for GHG reductions in California. AB 32 requires California to reduce GHG emissions to 1990 levels by 2020. Health & Saf. Code § 38500 *et seq*. However, in September 2016, before the release of the DEIR, Governor Brown signed Senate Bill 32, enacting Health & Saf. Code § 38566. This statute ("SB 32") requires California to achieve a new, more aggressive 40 percent reduction in GHG emissions over the 1990 level by the end of 2030. As a result, the Project's reliance on AB 32 is incorrect and the Project must instead comply with Senate Bill 32 (SB 32), which would include a more aggressive GHG threshold.

Consistent with the edicts of SB 32, other air control districts have adopted more aggressive GHG thresholds for project-level analysis, including but not limited to the Sacramento Metropolitan Air Quality Management District (SMAQMD), the Bay Area Air Quality Management District (BAAQMD), and the San Luis Obispo Air Pollution Control District (SLOAPCD) (as summarized in the tables below). Given the cumulative nature of GHG emissions and consistent with CEQA Guidelines § 15064.7(c), these recommended thresholds are appropriate for projects in the SCAQMD regions.

SMAQMD (May 2018) Guide to Air Quality Assessment[58]

Land Development and Construction Projects		
	Construction Phase	Operational Phase
Greenhouse Gas Emissions (GHG) Thresholds		
GHG as CO2e	1,100 metric tons/year	1,100 metric tons/year

Stationary Source Only		
	Construction Phase	Operational Phase
Greenhouse Gas Emissions (GHG) Thresholds		
GHG as CO2e	1,100 metric tons/year	10,000 metric tons/year

1) Construction phase of all project types – 1,100 MT CO_2e/yr.

[57] SCAQMD (Dec. 5, 2008), *supra* fn. 50, p. 3.
[58] SMAQMD (May 2018), *supra* fn. 50, p. 6-10-12; *see also* SMAQMD Thresholds of Significance Table, http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable5-2015.pdf.

2) Operational phase of a land development project – 1,100 MT CO_2e/yr (noting a 72-room hotel and a 122-unit high-rise apartment building would each be equivalent to the 1,100 MT CO_2e/yr threshold).[59]
3) Stationary source operational emissions – 10,000 MT CO_2e/yr.

BAAQMD (May 2017) CEQA Air Quality Guidelines[60]

GHGs – Projects other than Stationary Sources	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT of CO_2e/yr OR 4.6 MT CO_2e/SP/yr (residents+employees)
GHGs –Stationary Sources	10,000 MT/yr

While providing 10,000 MT CO_2e/yr for stationary-source projects, other projects (e.g., residential, commercial, public land uses):

1) CAP: Compliance with a qualified GHG Reduction Strategy; or
2) Bright Line: Annual emissions less than 1,100 MT CO_2e/year; or
3) Efficiency Level: 4.6 MT CO_2e/SP/year (residents + employees). [61]

SLOAPCD (Mar. 2012) GHG Thresholds and Supporting Evidence[62]

GHG Emissions Threshold Summary	
Residential and Commercial Projects	**Compliance with Qualified GHG Reduction Strategy** OR **Bright-Line Threshold of 1,150 MT of CO_2e/yr.** OR **Efficiency Threshold of 4.9 MT CO_2e/SP*/yr.**
Industrial (Stationary Sources)	**10,000 MT of CO_2e/yr.**

1) CAP: Consistency with qualitative reduction strategies (e.g., Climate Action Plans).
2) Bright-Line Threshold: 1,150 MT CO_2e/year after inclusion of emission-reducing features of a proposed project, those still exceeding the threshold would have to reduce their emissions below that level to be considered less than significant.
3) Efficiency-Based Threshold: 4.9 MT CO_2e/SP/year dependent on per capita basis for residential projects or the sum of jobs and residents for mixed-use projects (noting 0.64 employees per 1,000 SF of hotel development).

[59] SMAQMD (Apr. 2018) SMAQMD Operational Screening Levels (showing that a 190-room hotel like Option A or a 160-unit high-rise apartment like Option B would exceed the 72-room and 122-unit thresholds), http://www.airquality.org/LandUseTransportation/Documents/Ch4+Ch6OperationalScreening4-2018.pdf.

[60] BAAQMD (May 2017), *supra* fn. 50, p. 2-2-4. Like the SCAQMD area, BAAQMD is designated as a nonattainment area for state/national ozone and particulate matter (PM) and thresholds would seem particularly apt for the 5th and Hill Project. *Compare id*. at p. 2-1 *with* SCAQMD NAAQS/CAAQS Attainment Status (noting "extreme" and "serious" nonattainment for multiple ozone and PM standards), http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf.

[61] The BAAQMD has not formally adopted an efficiency level after 2020. However, other projects within BAAQMD's jurisdiction have extrapolated 2030 efficiency thresholds in order to comply with SB 32 reduction targets. For example, the Park View Towers Project's Addendum to the Final Supplemental Environmental Impact Report utilizes a 2030 efficiency threshold of 2.6 MT CO_2e/year. Based on this efficiency threshold, the proposed Project would exceed threshold and result in a significant impact. Park View Tower's Addendum available at: http://www.sanjoseca.gov/DocumentCenter/View/80743

[62] SLOAPCD (Mar. 28, 2012), supra fn. 50, p. 25-30, 42.

Although more demanding, the above-listed thresholds adopted by these air districts are analogous with the application of SCAQMD's screening threshold for mixed-use developments (3,000 MT CO_2e/year) and SCAQMD's Tier 4 efficiency target goals (4.8 MTCO_2e/SP/year for target year 2020 and 3.0 MTCO_2e/SP/year for target year 2035).[63] The actions taken by other air districts to reduce GHG emissions through more stringent thresholds is the most persuasive rationale as to why the *Interim Thresholds* apply as the current standard set of evolving scientific knowledge and regulatory schemes. Even though the SCAQMD's interim thresholds may be outdated and may not be adopted, they are consistent with the methods of analysis that is regularly practiced by other air districts and furthers CEQA's demand for "'conservative analysis' to afford 'fullest possible protection of the environment.'"[64] Hence, the DEIR's GHG analysis is not consistent with evolving standards, nor is the conclusion that the Project has a less than significant GHG impact supported by substantial evidence.

Finally, the DEIR's quantification of Project GHG emissions is incorrect considering that it relies on a flawed CalEEMod model to determine emissions. As previously discussed, the DEIR's CalEEMod model fails to include all proposed land uses and relies on an incorrect land use size, incorrect land use population, unsubstantiated mitigation to construction equipment fuel type, incorrect number of worker trips, and incorrectly applied construction mitigation measures. As a result, the DEIR's CalEEMod models underestimate emissions and should not be relied upon to assess the Project's GHG emissions.

4) Updated Greenhouse Gas Analysis Demonstrates Significant Impact

Notwithstanding the flawed GHG evaluation discussed above, applicable thresholds demonstrate that the Project would have a significant GHG impact. As previously mentioned, in December 2008, SCAQMD released its *Interim Thresholds* that proposed the use of a 1,400 MT CO_2e/yr threshold for commercial developments, a 3,000 MT CO_2e/yr threshold for mixed-use developments, a 3,500 MT CO_2e/yr threshold for residential developments, and a 10,000 MTCO_2e/yr threshold for industrial projects.[65] Because the proposed Project is a mixed-use development, the most appropriate screening threshold to apply to the Project would be the 3,000 MT CO_2e/yr threshold recommended by the SCAQMD for mixed-use developments.

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[63] See SCAQMD (Dec. 5, 2008) Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2; *see also* SCAQMD (Oct. 2008) Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf; SCAQMD (Sep. 28, 2010) Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group # 15, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf.

[64] "Warehouse Truck Trip Study Data Results and Usage Presentation: Inland Empire Logistics Council." SCAQMD, June 2014, http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/final-ielc_6-19-2014.pdf?sfvrsn=2, p. 3; *see also Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390 ("The foremost principle under CEQA is that the Legislature intended the act to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.") (internal citations omitted).

[65] *Supra* fn. 61.

The CalEEMod output files disclose the Project's mitigated GHG emissions (p. IV.E-85, Table IV.E-9). When these emissions are compared to the 3,000 MT CO_2e/year threshold, we find that the Project's GHG emissions exceed the SCAQMD's mixed-use threshold (see table below).

DEIR Annual Greenhouse Gas Emissions	
Project Phase	**Proposed Project (MT CO_2e/year)**
On-Road Mobile Sources	11,800
Stationary (Emergency Generators)	27
Area	20
Electricity	6,862
Natural Gas	1,846
Water Conveyance and Wastewater Treatment	505
Solid Waste	242
Construction (Amortized)	745
Proposed Subtotal	22,047
Percent Reduction (Project Only)	28%
Net Operational (Proposed – Existing)	**14,922**
SCAQMD Significance Threshold	3,000
Exceed?	***Yes***

As demonstrated in the table above, the proposed Project would generate a total of approximately 14,922 MT CO_2e/year, which significantly exceeds the 3,000 MT CO_2e/year mixed-use project screening threshold.[66] According to SCAQMD guidance, when emissions exceed the screening-level threshold, a more detailed review of the project's GHG emissions is warranted.[67] SCAQMD proposed per capita efficiency targets to be used in these detailed reviews. SCAQMD proposed a 2020 efficiency target of 4.8 $MTCO_2e$/sp/yr for project-level analyses and 6.6 $MTCO_2e$/sp/yr for plan-level projects (e.g., program-level projects such as general plans). Those per capita efficiency targets are based on AB 32's GHG reduction target and the 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan. SCAQMD also created a 2035 efficiency threshold by reducing the 2020 thresholds by 40 percent, resulting in an efficiency threshold for plans of 4.1 $MTCO_2e$/sp/yr and an efficiency threshold at the project level of 3.0 $MTCO_2e$/s/yr.[68] Therefore, per SCAQMD guidance, because the Project's GHG emissions exceed SCAQMD's 3,000 $MTCO_2e$/yr screening-level threshold and the DEIR asserts that the Project will not be operational until 2023, the Project's emissions should be compared to the proposed 2035 efficiency target of 3.0 MT CO_2e/sp/yr (p. II-48).

[66] It should further be noted that this amounts to a mere 2.1 percent reduction of GHG emissions as compared to the Project's unmitigated emissions (i.e., 9,211 MT CO_2e/year). *See* pp. 193, pp. 195.
[67] SCAQMD (12/5/08), *supra* fn. 61, p. 6; *see also* SCAQMD (9/28/10), supra fn. 61, p. 2.
[68] *Ibid*.

According to CAPCOA's CEQA & Climate Change report, service population is defined as "the sum of the number of residents and the number of jobs supported by the project."[69] The DEIR states that the proposed Project would generate approximately 2,739 new residents (with full occupancy) and 186 new employees (p. IV.J-13). As a result, we estimate that the Project's service population would be approximately 2,925 people[70]. Dividing the Project's GHG emissions by a service population value of 2,925, we find that the Project would emit approximately 5.1 $MTCO_2e/sp/yr$.[71] When we compare the Project's per service population GHG emissions to the SCAQMD 2035 efficiency target of 3.0 $MTCO_2e/sp/yr$, we find that the Project would result in a significant GHG impact (see table below).

Annual Greenhouse Gas Emissions Efficiency		
Source	**Project Emissions**	**Unit**
DEIR Annual Emissions	14,922	MT CO_2e/year
Maximum Service Population	2,925	Residents &Employees
Per Service Population Annual Emissions	**5.1**	**MT CO_2e/sp/year**
2035 SCAQMD Project Level Efficiency Threshold	3.0	MT CO_2e/sp/year
Exceed?	***Yes***	**-**

As you can see in the table above, when we compare the per service population emissions estimated by the DEIR to the SCAQMD threshold of 3.0 $MTCO_2e/sp/yr$ for 2035, we find that the Project's emissions would exceed the threshold, thus resulting in a potentially significant impact. According to CEQA Guidelines § 15064.4(b), if there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, a full CEQA analysis must be prepared for the project. The DEIR may not ignore this analysis and application of routinely used GHG thresholds by claiming discretion in deciding which thresholds it wishes to employ. As one court explained when setting aside an EIR where commenters questioned the city's use of a particular threshold, the discretion granted to lead agencies are not "unbounded" and (emphasis added):

> "[T]he fact that a particular environmental effect *meets a particular threshold cannot be used as an automatic determinant that the effect is or is not significant* … a threshold of significance *cannot be applied in a way that would foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant*." *East Sacramento Partnership for a Livable City v. City of Sacramento* (2016) 5 Cal.App.5th 281, 300, 303-304 (internal citations omitted).

Thus, the results of the above analysis provide substantial evidence that the proposed Project's GHG emissions are still cumulatively considerable notwithstanding its purported compliance with CARB's 2017 Climate Change Scoping Plan, SCAG's 2016 RTP/SCS, the LA Green Plan, and the Sustainable City

[69] CAPCOA *(*Jan. 2008) CEQA & Climate Change, p. 71-72, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf.
[70] Calculated: (2,739 residents + 186 employees) = (2,925 service population)
[71] Calculated: (14,922 $MTCO_2e/yr$ / (2,925 service population) = (5.10 $MTCO_2e/sp/yr$)

pLAn (as challenged herein). Therefore, an updated CEQA analysis must be prepared for the Project, and mitigation should be implemented where necessary, per CEQA guidelines.

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

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Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education:

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on VOC filtration.
M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.
B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience:

Dr. Rosenfeld is the Co-Founder and Principal Environmental Chemist at Soil Water Air Protection Enterprise (SWAPE). His focus is the fate and transport of environmental contaminants, risk assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling, oil spills, boilers, incinerators and other industrial and agricultural sources relating to nuisance and personal injury. His project experience ranges from monitoring and modeling of pollution sources as they relate to human and ecological health. Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing petroleum, chlorinated solvents, pesticides, radioactive waste, PCBs, PAHs, dioxins, furans, volatile organics, semi-volatile organics, perchlorate, heavy metals, asbestos, PFOA, unusual polymers, MtBE, fuel oxygenates and odor. Dr. Rosenfeld has evaluated greenhouse gas emissions using various modeling programs recommended by California Air Quality Management Districts.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist
Bureau of Land Management, Kremmling Colorado 1990; Scientist

Publications:

Chen, J. A., Zapata, A R., Sutherland, A. J., Molmen, D. R,. Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing,

Rosenfeld P.E., and Suffet, I.H. (Mel) (2007). Anatomy of an Odor Wheel. *Water Science and Technology*.

Rosenfeld, P.E., Clark, J.J.J., Hensley A.R., Suffet, I.H. (Mel) (2007). The use of an odor wheel classification for evaluation of human health risk criteria for compost facilities. *Water Science And Technology*.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant*. The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993.

Deposition and/or Trial Testimony:

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September, 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio

John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the Court of Common Pleas for the Second Judicial Circuit, State of South Carolina, County of Aiken
David Anderson, et al., *Plaintiffs*, vs. Norfolk Southern Corporation, et al., *Defendants*.
Case Number: 2007-CP-02-1584

In the Circuit Court of Jefferson County Alabama
Jaeanette Moss Anthony, et al., *Plaintiffs*, vs. Drummond Company Inc., et al., *Defendants*
Civil Action No. CV 2008-2076
Rosenfeld Deposition: September 2010

In the Ninth Judicial District Court, Parish of Rapides, State of Louisiana
Roger Price, et al., *Plaintiffs*, vs. Roy O. Martin, L.P., et al., *Defendants*.
Civil Suit Number 224,041 Division G
Rosenfeld Deposition: September 2008

In the United States District Court, Western District Lafayette Division
Ackle et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 2:07CV1052
Rosenfeld Deposition: July 2009

In the United States District Court for the Southern District of Ohio
Carolyn Baker, et al., *Plaintiffs*, vs. Chevron Oil Company, et al., *Defendants*.
Case Number 1:05 CV 227
Rosenfeld Deposition: July 2008

In the Fourth Judicial District Court, Parish of Calcasieu, State of Louisiana
Craig Steven Arabie, et al., *Plaintiffs*, vs. Citgo Petroleum Corporation, et al., *Defendants*.
Case Number 07-2738 G

In the Fourteenth Judicial District Court, Parish of Calcasieu, State of Louisiana
Leon B. Brydels, *Plaintiffs*, vs. Conoco, Inc., et al*., Defendants.*
Case Number 2004-6941 Division A

In the District Court of Tarrant County, Texas, 153rd Judicial District
Linda Faust, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, Witco Chemical Corporation A/K/A Witco Corporation, Solvents and Chemicals, Inc. and Koppers Industries, Inc., *Defendants*.
Case Number 153-212928-05
Rosenfeld Deposition: December 2006, October 2007
Rosenfeld Trial: January 2008

In the Superior Court of the State of California in and for the County of San Bernardino
Leroy Allen, et al., *Plaintiffs*, vs. Nutro Products, Inc., a California Corporation and DOES 1 to 100, inclusive, *Defendants*.
John Loney, Plaintiff, vs. James H. Didion, Sr.; Nutro Products, Inc.; DOES 1 through 20, inclusive, *Defendants*.
Case Number VCVVS044671
Rosenfeld Deposition: December 2009
Rosenfeld Trial: March 2010

In the United States District Court for the Middle District of Alabama, Northern Division
James K. Benefield, et al., *Plaintiffs*, vs. International Paper Company, *Defendant*.
Civil Action Number 2:09-cv-232-WHA-TFM
Rosenfeld Deposition: July 2010, June 2011

In the Superior Court of the State of California in and for the County of Los Angeles
Leslie Hensley and Rick Hensley, *Plaintiffs*, vs. Peter T. Hoss, as trustee on behalf of the Cone Fee Trust; Plains Exploration & Production Company, a Delaware corporation; Rayne Water Conditioning, Inc., a California Corporation; and DOES 1 through 100, *Defendants.*
Case Number SC094173
Rosenfeld Deposition: September 2008, October 2008

In the Superior Court of the State of California in and for the County of Santa Barbara, Santa Maria Branch
Clifford and Shirley Adelhelm, et al., all individually, *Plaintiffs*, vs. Unocal Corporation, a Delaware Corporation; Union Oil Company of California, a California corporation; Chevron Corporation, a California corporation; ConocoPhillips, a Texas corporation; Kerr-McGee Corporation, an Oklahoma corporation; and DOES 1 though 100, *Defendants.*
Case Number 1229251 (Consolidated with case number 1231299)
Rosenfeld Deposition: January 2008

In the United States District Court for Eastern District of Arkansas, Eastern District of Arkansas
Harry Stephens Farms, Inc, and Harry Stephens, individual and as managing partner of Stephens Partnership, *Plaintiffs*, vs. Helena Chemical Company, and Exxon Mobil Corp., successor to Mobil Chemical Co., *Defendants.*
Case Number 2:06-CV-00166 JMM (Consolidated with case number 4:07CV00278 JMM)
Rosenfeld Deposition: July 2010

In the United States District Court for the Western District of Arkansas, Texarkana Division
Rhonda Brasel, et al., *Plaintiffs*, vs. Weyerhaeuser Company and DOES 1 through 100, *Defendants.*
Civil Action Number 07-4037
Rosenfeld Deposition: March 2010
Rosenfeld Trial: October 2010

In the District Court of Texas 21st Judicial District of Burleson County
Dennis Davis, *Plaintiff*, vs. Burlington Northern Santa Fe Rail Way Company, *Defendant.*
Case Number 25,151
Rosenfeld Trial: May 2009

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

Exhibit C

SMITH ENGINEERING & MANAGEMENT

October 11, 2019

Mr. Richard Drury
Lozeau Drury
1939 Harrison Street, Suite 150
Oakland, CA 94612

Subject: Times Mirror Square Project Draft Environmental Impact Report (SCH No. 2017061083) P19035

Dear Mr. Drury:

At your request, I have reviewed the Draft Environmental Impact Report (hereinafter the "DEIR") for the Times Mirror Square Project (the "Project") in the City of Los Angeles (the "City"). My review is specific to the Traffic and Circulation sections of that document and related appendices.

My qualifications to perform this review include registration as a Civil and Traffic Engineer in California and over 50 years professional consulting engineering practice in the traffic and transportation industry. I have both prepared and performed adequacy reviews of numerous transportation and circulation sections of environmental impact reports prepared under the California Environmental Quality Act (CEQA) including residential and mixed use complexes. My professional resume is attached. Findings of my review are summarized below.

Overview

The DEIR discloses that the Project would have significant traffic impact in the Existing + Project condition at the intersection of Broadway with W. 2nd and in the Future (2023 + Project condition at six intersections:

1. S. Figueroa Street & W. 2nd Street (PM peak hour)
5. Hill Street & W. 1st Street (AM peak hour)

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10. Broadway & W. 1st Street (both peak hours)
11. S. Broadway & W 2nd Street (both peak hours)
12. S. Broadway & W. 3rd Street (AM peak hour)
17. S. Spring Street & W. 2nd Street (AM peak hour).

It is critical that the severity of impact at these locations be accurately disclosed since the DEIR finds that physical improvements at these locations are infeasible. As a consequence, in order to approve this Project, findings of overriding considerations will have to be made. To make such findings, public policy-makers and the public must have confidence that the severity of impacts that are overridden are accurately disclosed.

There are reasons why the true severity of the Project's impacts have not been disclosed. One of these is that with the significant impacts at the intersections disclosed as noted above, it is highly likely that there would be queuing impacts at those locations. Yet the DEIR fails to consider queues at those locations. It only analyzes queues at the Project driveways.

Another reason is because the DEIR analysis distained to consider the traffic consequences of the Downtown Streetcar operation. This streetcar would operate in street-running configuration southbound on Broadway and northbound on Hill Street in the Project vicinity. Seven of the DEIR's study intersections and four of the intersections disclosed to be significantly impacted by the subject Project would be on the streetcar route. The operations and/or lane reservations for the streetcar would inevitably have deleterious effects on traffic that could only intensify the severity of the Projects traffic impacts that have been disclosed. Also, the traffic impacts of the Project could have deleterious effect on streetcar operations.

Another reason is the trip generation analysis applies an obsolete basic trip generation data resource and applies trip generation adjustment factors in ways that are inconsistent with the timing of certain transit improvements and the characteristics of the setting of the Project. As a consequence, the Project's contribution of net new trips is understated.

Yet another reason is that the traffic analysis assumes that 35 percent of the Project's vehicle trips will originate or be destined within a roughly circular area of the downtown ranging in radius from about 0.75 to 0.85 miles from the intersection of W. 2nd and Broadway. While this percentage is likely true of the total person-trips generated by the Project, most of the vehicle trips generated are likely to originate or be destined outside of this circle. As a consequence, the Project's contribution of traffic to critical gateway intersections at and near freeway ramps serving the downtown is understated.

Finally, the analysis fails to consider the impacts of increasing reliance on Transportation Network Companies (TNCs or ridesharing).

We explore the above issues in the paragraphs below.

Failure to Consider Queuing

As noted above, the DEIR discloses that the Project would have significant traffic impacts at 6 intersections in the 2023 project completion scenario. At 4 of these locations the impacts involve operations in the Level-of-Service (LOS) E or F. Locations experiencing LOS E or F operations are highly likely to have queuing problems which further degrade conditions. Yet the DEIR performed no queue analysis at these obvious locations.

Failure to Consider the Effects of the Downtown Streetcar

As noted above, the City has approved plans for a downtown streetcar operation that would run by the Project site southbound on Broadway and close to the Project site on Hill Street. It would run through 4 of the intersections where the DEIR discloses the Project would have significant traffic impacts. The DEIR dismisses consideration of the streetcar project in the traffic analysis of the subject Project, Citing the fact that as of August 3, 2018 the Streetcar Project was not fully funded.[1] However, the Notice of Preparation ("NOP") on the subject Project was not issued until June 30, 2017. By that date the LA Bureau of Engineering published a CEQA FEIR on the Streetcar on October 24, 2016 and it was certified by the City Council on November 29, 2016. The LA City Council also approved the streetcar route on November 29, 2016. Hence, the streetcar project was reasonably foreseeable at the time of the NOP for the Times-Mirror EIR and its design was defined at a level of detail sufficient for traffic impact analysis.

Disregarding the streetcar based on funding status is inconsistent with the City's treatment of other developments contained in the list of Related Projects LADOT provides as input to the cumulative analysis. There is no evidence of consideration whether a project is fully funded to be entered onto the related projects list. The only criterion seems to be that a project has formally filed for planning, zoning and environmental approvals.

Obsolete Trip Generation Data Resource, Adjustments Inconsistent With Timing of Transit Improvements and Adjustments Inconsistent With the Nature of Project Components

The DEIR's transportation impact analysis relies on basic trip generation rates from the Institute of Transportation Engineers publication, *Trip Generation, 9th*

[1] See DEIR at page II-15

Edition, released in 2012. The subsequent *10th Edition* was released in late 2017. A significant improvement of the *10th Edition* over the *9th Edition* is a focus on data for high rise residential and mixed use developments in dense urban settings. Even though the *10th Edition* was released a few months later than the date of the NOP, the EIR traffic impact analysis, which was not completed until early May, 2018,[2] could easily have relied on the superior edition of the data source.

Because of the limitations of early editions of *Trip Generation*, which focused on sites involving single land use types which were most easily countable in suburban settings where transit and pedestrian activity tended to be minimal as opposed to dense urban, well-transit-served, highly pedestrianized areas with mixed use developments, and also did not distinguish between new trips generated by the project as differentiated from trips attracted from existing traffic (passers-by), adjustment factors were developed to take account of these considerations. However, in the subject DEIR some adjustments seem to have been misapplied.

In specific, the DEIR analysis takes a 25 percent peak hour transit credit on the trips of the Project's non-residential components based on the assumed 2023 completion of the of the 2nd St./Broadway Regional Connector Station immediately adjacent to the Project site (same completion year as the Project). This is fine for the 2023 analysis. However, for the Existing + Project analysis those Project components should only get the 15 percent transit credit the analysis assumes for the existing uses of the site since that adjacent station did not exist in 2017.

Also, the analysis assumes a 40 percent attracted passer-by discount on trips to/from the supermarket component of the Project. However, this is a passer-by attraction rate generally only achieved in supermarkets located along suburban arterials in centers with copious surface parking. This is not even close to realistic when people are already encased in their vehicles on urban streets in a dense urban downtown trying to get somewhere else and where they would have to enter and exit a multi-level parking garage or hunt for scarce street parking.

Reasonable changes to both of these adjustment factors could significantly alter the severity of the impacts disclosed and might result in impacts at other locations. In particular, at intersection 7, Hill Street with W. 3rd, which is on the cusp of the Project causing sufficient volume/capacity (V/C) change[3] to be found to be significantly impactful (and is also on the route of the downtown streetcar) appropriate changes to these adjustment factors would certainly result in findings of significant impact.

The Project Trip Distribution Understates Traffic at Critical Locations

[2] Based on the dates imprinted on the Appendix L ICU computation sheets.
[3] See DEIR Appendix L, Table 8 at page 37.

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The DEIR traffic analysis assumes that 35 percent of the Project's vehicle trips will originate or be destined within a roughly circular area of the downtown ranging in radius from about 0.75 to 0.85 miles from the intersection of W. 2nd and Broadway. It is understood that the City of Los Angeles Travel Demand Model, the reported basis for the 35 percent local trips assumption, is a person-trip mode. While this percentage is likely true of the total person-trips generated by the Project, most of the vehicle trips generated are likely to originate or be destined outside of this circle. As a consequence, the Project's contribution of traffic to critical gateway intersections at and near freeway ramps serving the downtown is understated.

Lack of Consideration of Transportation Network Companies (Ridesharing) Effects on Tripmaking and Mode Choice

The rise of Transportation Network Companies (ridesharing operations like Uber and Lyft) has dramatically changed the way people travel in urban areas in recent years. Recent studies have found that TNCs have cut into transit, walk and bike shares of trip-making and caused induced trips (trips that would not otherwise be made) and, due to the recirculation to access new rides and careless loading and unloading, caused an approximate doubling in congestion and vehicle miles traveled (VMT) over that which would be ordinarily be accounted for by land use development in dense urban areas.[4] The DEIR has made no effort to estimate traffic due to TNC use due to the Project. This is a critical flaw.

Conclusion

This concludes my comments on the Times-Mirror Project DEIR transportation element. Given the foregoing, I conclude that the DEIR transportation analysis must be revised and recirculated in draft status.

Sincerely,

Smith Engineering & Management
A California Corporation

[4] *TNCs & Congestion*, San Francisco County Transportation Authority, October, 2018

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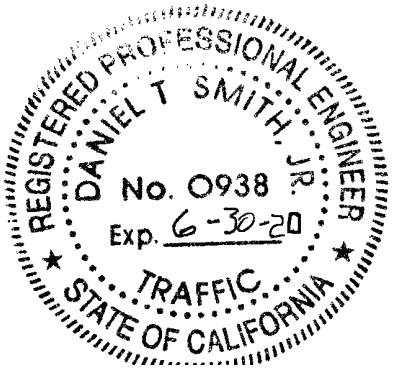

Daniel T. Smith Jr., P.E.
President

Attachment 1
Resume of Daniel T. Smith Jr., P.E.

SMITH ENGINEERING & MANAGEMENT

DANIEL T. SMITH, Jr.
President

EDUCATION

Bachelor of Science, Engineering and Applied Science, Yale University, 1967
Master of Science, Transportation Planning, University of California, Berkeley, 1968

PROFESSIONAL REGISTRATION

California No. 21913 (Civil) Nevada No. 7969 (Civil) Washington No. 29337 (Civil)
California No. 938 (Traffic) Arizona No. 22131 (Civil)

PROFESSIONAL EXPERIENCE

Smith Engineering & Management, 1993 to present. President.
DKS Associates, 1979 to 1993. Founder, Vice President, Principal Transportation Engineer.
De Leuw, Cather & Company, 1968 to 1979. Senior Transportation Planner.
Personal specialties and project experience include:

Litigation Consulting. Provides consultation, investigations and expert witness testimony in highway design, transit design and traffic engineering matters including condemnations involving transportation access issues; traffic accidents involving highway design or traffic engineering factors; land use and development matters involving access and transportation impacts; parking and other traffic and transportation matters.

Urban Corridor Studies/Alternatives Analysis. Principal-in-charge for State Route (SR) 102 Feasibility Study, a 35-mile freeway alignment study north of Sacramento. Consultant on I-280 Interstate Transfer Concept Program, San Francisco, an AA/EIS for completion of I-280, demolition of Embarcadero freeway, substitute light rail and commuter rail projects. Principal-in-charge, SR 238 corridor freeway/expressway design/environmental study, Hayward (Calif.) Project manager, Sacramento Northeast Area multi-modal transportation corridor study. Transportation planner for I-80N West Terminal Study, and Harbor Drive Traffic Study, Portland, Oregon. Project manager for design of surface segment of Woodward Corridor LRT, Detroit, Michigan. Directed staff on I-80 National Strategic Corridor Study (Sacramento-San Francisco), US 101-Sonoma freeway operations study, SR 92 freeway operations study, I-880 freeway operations study, SR 152 alignment studies, Sacramento RTD light rail systems study, Tasman Corridor LRT AA/EIS, Fremont-Warm Springs BART extension plan/EIR, SRs 70/99 freeway alternatives study, and Richmond Parkway (SR 93) design study.

Area Transportation Plans. Principal-in charge for transportation element of City of Los Angeles General Plan Framework, shaping nations largest city two decades into 21'st century. Project manager for the transportation element of 300-acre Mission Bay development in downtown San Francisco. Mission Bay involves 7 million gsf office/commercial space, 8,500 dwelling units, and community facilities. Transportation features include relocation of commuter rail station; extension of MUNI-Metro LRT; a multi-modal terminal for LRT, commuter rail and local bus; removal of a quarter mile elevated freeway; replacement by new ramps and a boulevard; an internal roadway network overcoming constraints imposed by an internal tidal basin; freeway structures and rail facilities; and concept plans for 20,000 structured parking spaces. Principal-in-charge for circulation plan to accommodate 9 million gsf of office/commercial growth in downtown Bellevue (Wash.). Principal-in-charge for 64 acre, 2 million gsf multi-use complex for FMC adjacent to San Jose International Airport. Project manager for transportation element of Sacramento Capitol Area Plan for the state governmental complex, and for Downtown Sacramento Redevelopment Plan. Project manager for Napa (Calif.) General Plan Circulation Element and Downtown Riverfront Redevelopment Plan, on parking program for downtown Walnut Creek, on downtown transportation plan for San Mateo and redevelopment plan for downtown Mountain View (Calif.), for traffic circulation and safety plans for California cities of Davis, Pleasant Hill and Hayward, and for Salem, Oregon.

Transportation Centers. Project manager for Daly City Intermodal Study which developed a $7 million surface bus terminal, traffic access, parking and pedestrian circulation improvements at the Daly City BART station plus development of functional plans for a new BART station at Colma. Project manager for design of multi-modal terminal (commuter rail, light rail, bus) at Mission Bay, San Francisco. In Santa Clarita Long Range Transit Development Program, responsible for plan to relocate system's existing timed-transfer hub and development of three satellite transfer hubs. Performed airport ground transportation system evaluations for San Francisco International, Oakland International, Sea-Tac International, Oakland International, Los Angeles International, and San Diego Lindberg.

Campus Transportation. Campus transportation planning assignments for UC Davis, UC Berkeley, UC Santa Cruz and UC San Francisco Medical Center campuses; San Francisco State University; University of San Francisco; and the University of Alaska and others. Also developed master plans for institutional campuses including medical centers, headquarters complexes and research & development facilities.

Special Event Facilities. Evaluations and design studies for football/baseball stadiums, indoor sports arenas, horse and motor racing facilities, theme parks, fairgrounds and convention centers, ski complexes and destination resorts throughout western United States.

Parking. Parking programs and facilities for large area plans and individual sites including downtowns, special event facilities, university and institutional campuses and other large site developments; numerous parking feasibility and operations studies for parking structures and surface facilities; also, resident preferential parking .

Transportation System Management & Traffic Restraint. Project manager on FHWA program to develop techniques and guidelines for neighborhood street traffic limitation. Project manager for Berkeley, (Calif.), Neighborhood Traffic Study, pioneered application of traffic restraint techniques in the U.S. Developed residential traffic plans for Menlo Park, Santa Monica, Santa Cruz, Mill Valley, Oakland, Palo Alto, Piedmont, San Mateo County, Pasadena, Santa Ana and others. Participated in development of photo/radar speed enforcement device and experimented with speed humps. Co-author of Institute of Transportation Engineers reference publication on neighborhood traffic control.

Bicycle Facilities. Project manager to develop an FHWA manual for bicycle facility design and planning, on bikeway plans for Del Mar, (Calif.), the UC Davis and the City of Davis. Consultant to bikeway plans for Eugene, Oregon, Washington, D.C., Buffalo, New York, and Skokie, Illinois. Consultant to U.S. Bureau of Reclamation for development of hydraulically efficient, bicycle safe drainage inlets. Consultant on FHWA research on effective retrofits of undercrossing and overcrossing structures for bicyclists, pedestrians, and handicapped.

MEMBERSHIPS

Institute of Transportation Engineers Transportation Research Board

PUBLICATIONS AND AWARDS

Residential Street Design and Traffic Control, with W. Homburger *et al*. Prentice Hall, 1989.

Co-recipient, Progressive Architecture Citation, *Mission Bay Master Plan*, with I.M. Pei WRT Associated, 1984.

Residential Traffic Management, State of the Art Report, U.S. Department of Transportation, 1979.

Improving The Residential Street Environment, with Donald Appleyard et al., U.S. Department of Transportation, 1979.

Strategic Concepts in Residential Neighborhood Traffic Control, International Symposium on Traffic Control Systems, Berkeley, California, 1979.

Planning and Design of Bicycle Facilities: Pitfalls and New Directions, Transportation Research Board, Research Record 570, 1976.

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Exhibit D

Indoor Air Quality in New California Homes with Mechanical Ventilation

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SUMMARY
The Healthy Efficient New Gas Homes (HENGH) study measured indoor air quality and mechanical ventilation use in 70 new California homes. This paper summarizes preliminary results collected from 42 homes. In addition to measurements of formaldehyde, nitrogen dioxide (NO_2), and $PM_{2.5}$ that are discussed here, HENGH also monitored other indoor environmental parameters (e.g., CO_2) and indoor activities (e.g., cooking, fan use) using sensors and occupant logs. Each home was monitored for one week. Diagnostic tests were performed to characterize building envelope and duct leakage, and mechanical system airflow. Comparisons of indoor formaldehyde, NO_2, and $PM_{2.5}$ with a prior California New Home Study (CNHS) (Offermann, 2009) suggest that contaminant levels are lower than measured from about 10 years ago. The role of mechanical ventilation on indoor contaminant levels will be evaluated.

KEYWORDS
Formaldehyde; nitrogen dioxide; particles; home performance; field study

1 INTRODUCTION

The HENGH field study (2016–2018) aimed to measure indoor air quality in 70 new California homes that have mechanical ventilation. Eligible houses were built in 2011 or later; had an operable whole-dwelling mechanical ventilation system; used natural gas for space heating, water heating, and/or cooking; and had no smoking in the home. Study participants were asked to rely on mechanical ventilation and avoid window use during the one-week monitoring period. All homes had a venting kitchen range hood or over the range microwave and bathroom exhaust fans. This paper presents summary results of formaldehyde, NO_2, and $PM_{2.5}$ measurements in 42 homes. The full dataset is expected to be available in summer 2018.

2 METHODS

Integrated one-week concentrations of formaldehyde and NO_x were measured using SKC UMEx-100 and Ogawa passive samplers. Formaldehyde samplers were deployed in the main living space, master bedroom, and outdoors. $PM_{2.5}$ were measured using a pair of photometers (ES-642/BT-645, MetOne Instruments) indoor in the main living space and outdoors. $PM_{2.5}$ filter samples were collected using a co-located pDR-1500 (ThermoFisher) in a subset of the homes and time-resolved photometer data were adjusted using the gravimetric measurements. Results are compared with a prior field study CNHS (2007–2008) (Offermann, 2009) that monitored for contaminant concentrations over a 24-hour period in 108 homes built between 2002 and 2004, including a subset of 26 homes with whole-dwelling mechanical ventilation.

3 RESULTS

Figure 1 compares the indoor concentrations of formaldehyde, NO_2, and $PM_{2.5}$ measured by the two studies. Results of HENGH are one-week averaged concentrations, whereas CHNS are 24-hour averages. HENGH measured lower indoor concentrations of formaldehyde and $PM_{2.5}$, compared to CNHS. For NO_2, the indoor concentrations measured by the two studies

are similar. Summary statistics of indoor and outdoor contaminant concentrations (mean and median concentrations; N=number of homes with available data) are presented in Table 1.

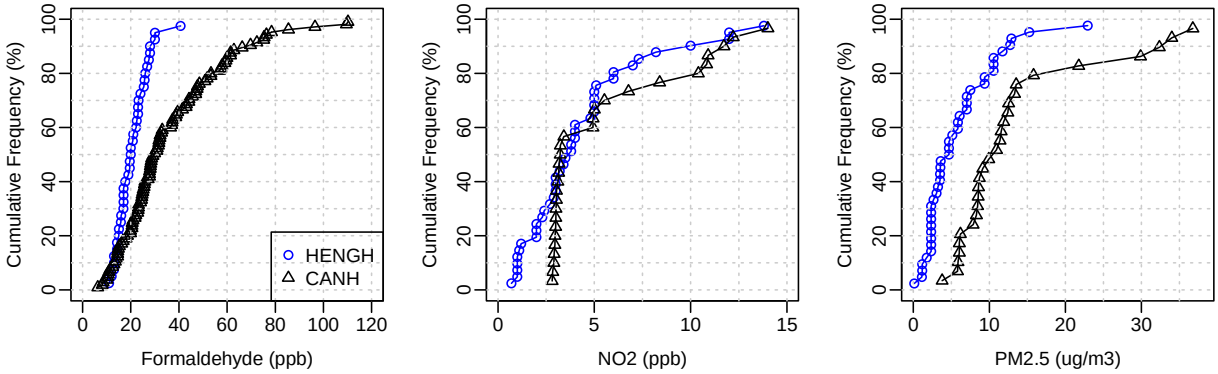

Figure 1. Comparisons of indoor contaminant concentrations measured by two studies.

Table 1. Summary statistics of indoor and outdoor contaminant concentrations.

	HENGH - Indoor			CNHS - Indoor			HENGH - Outdoor			CNHS - Outdoor		
	N	Median	Mean	N	Median	Mean	N	Median	Mean	N	Median	Mean
Formaldehyde (ppb)	39	20.0	20.6	104	29.5	36.3	38	2.0	2.0	43	1.8	2.8
NO_2 (ppb)	40	3.7	4.4	29	3.2	5.4	40	3.0	3.1	11	3.1	3.5
$PM_{2.5}$ (ug/m^3)	41	4.7	5.8	28	10.4	13.3	42	5.9	7.7	11	8.7	7.9

4 DISCUSSION

The lower formaldehyde concentrations measured by HENGH in comparison to CNHS may be attributable to California's regulation to limit formaldehyde emissions from composite wood products that came into effect between the two studies. Gas cooking is a significant source of indoor NO_2 (Mullen et al., 2016). Even though NO_2 concentrations measured by HENGH are similar to levels found in CNHS, the two studies differed in that HENGH homes all use gas for cooking, whereas almost all homes (98%) from the prior study used electric ranges. More analysis is needed to determine the effectiveness of source control, such as range hood use during cooking, on indoor concentrations of cooking emissions such as NO_2 and $PM_{2.5}$. Lower $PM_{2.5}$ indoors measured by HENGH compared to CNHS may be explained from a combination of lower outdoor $PM_{2.5}$ levels, reduced particle penetration due to tighter building envelopes (Stephens and Siegel, 2012) combined with exhaust ventilation, and use of medium efficiency air filter (MERV 11 or better) in some HENGH homes. Further analysis of the data will evaluate the role of mechanical ventilation, including local exhaust and whole-dwelling ventilation system, on measured indoor contaminant levels.

5 CONCLUSIONS

New California homes now have lower indoor formaldehyde levels than previously measured, likely as a result of California's formaldehyde emission standards. Indoor concentrations of NO_2 and $PM_{2.5}$ measured are also low compared to a prior study of new homes in California.

ACKNOWLEDGEMENT

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